

CENTER OF NEUROLOGY  
T Ü B I N G E N

# ANNUAL REPORT 2012



# ANNUAL REPORT 2012

---

CENTER OF NEUROLOGY TÜBINGEN

## Directors:

Prof. Dr. Thomas Gasser  
Prof. Dr. Mathias Jucker  
Prof. Dr. Holger Lerche  
Prof. Dr. Peter Thier  
Prof. Dr. Ulf Ziemann



# TABLE OF CONTENTS

## THE CENTER OF NEUROLOGY TÜBINGEN IN 2012 DAS ZENTRUM FÜR NEUROLOGY IM JAHR 2012

Facts & Figures

II

### UNIVERSITY HOSPITAL OF NEUROLOGY

VI

NEUROLOGISCHE KLINIK DES UNIVERSITÄTSKLINIKUMS TÜBINGEN

Clinical Care

VII

### THE HERTIE-INSTITUTE FOR CLINICAL BRAIN RESEARCH (HIH)

X

DAS HERTIE-INSTITUT FÜR KLINISCHE HIRNFORSCHUNG (HIH)

University Hospital of Neurology

2

Department of Vascular Neurology

4

Department of Neurology and Epileptology

12

Department of Neurodegenerative Diseases

18

Department of Cognitive Neurology

44

Department of Cellular Neurology

60

Independent Research Groups

66

List of Publications

74

A fluorescence micrograph showing a dense network of neurons. The neurons are stained with various colors: green for the soma and processes, orange for specific markers on some cells, and blue for nuclei. A solid blue horizontal bar is positioned across the middle of the image, containing the text "THE CENTER OF NEUROLOGY".

**THE CENTER OF NEUROLOGY**

## THE CENTER OF NEUROLOGY



*The Hertie-Institute for Clinical Brain Research with its modern architecture and up-to-date infrastructure is one of Germany's largest facilities for neurological research.*

### THE CENTER OF NEUROLOGY IN 2012

The Center of Neurology at the University of Tübingen was founded in 2001. It unites the Hertie-Institute for Clinical Brain Research (HIH) and the University Hospital for Neurology with the mission to promote excellence in research and patient care.

Presently, the center consists of five departments: Vascular Neurology, Epileptology, Neurodegeneration, Cognitive Neurology and Cellular Neurology. The clinical departments provide inpatient and outpatient care within the University Hospital, while their clinical and basic research groups are part of the Hertie-Institute.

The fact that all departments of the center actively participate, albeit to a different degree, in the clinical care of patients with neurologic diseases is crucial to the concept of successful clinical brain research at the Hertie-Institute. This is of course most obvious in clinical drug trials, which are conducted for example on the treatment of Parkinson's disease, multiple sclerosis, epilepsies and brain tumors. However, the intimate interconnection of science and patient care is of eminent importance to all areas of disease-related neuroscience. It forms the very center of the Hertie-concept and distinguishes the Center of Neurology from other institutions of neuroscientific research.

# 2012

## DAS ZENTRUM FÜR NEUROLOGIE

### DAS ZENTRUM FÜR NEUROLOGIE IM JAHR 2012

*Mit dem im Jahre 2001 unterzeichneten Vertrag zwischen der Gemeinnützigen Hertie-Stiftung (GHS) und dem Land Baden-Württemberg, der Universität Tübingen und ihrer medizinischen Fakultät sowie dem Universitätsklinikum Tübingen wurde das „Zentrum für Neurologie“ geschaffen. Damit entstand eines der größten Zentren für klinische und krankheitsorientierte Hirnforschung in Deutschland.*

*Das Zentrum besteht aus zwei eng verbundenen Institutionen, der Neurologischen Klinik und dem Hertie-Institut für klinische Hirnforschung (HIH). Die Aufgaben des Zentrums liegen sowohl in der Krankenversorgung durch die Neurologische Klinik als auch in der wissenschaftlichen Arbeit der im HIH zusammengeschlossenen Forscher. Das Zentrum besteht derzeit aus fünf Abteilungen: Allgemeine Neurologie mit Schwerpunkt Vaskuläre Erkrankungen, Neurologie mit Schwerpunkt Epileptologie, Neurodegenerative Erkrankungen, Kognitive Neurologie und Zellbiologie Neurologischer Erkrankungen. Die besonders enge Verknüpfung von Klinik und Grundlagenforschung ist ein fundamentaler Aspekt des Hertie-Konzepts und ein Alleinstellungsmerkmal gegenüber anderen Institutionen der Hirnforschung. Dies ist unter anderem die Grundlage für erfolgreiche Medikamenten-Studien, die am Zentrum zum Beispiel in der Therapie der Parkinson-Krankheit, der Epilepsien, der Multiplen Sklerose und auch in der Hirntumorbehandlung in erheblichem Umfang durchgeführt werden.*

# 2012



*Professor Daniela Berg performing a Transcranial Sonography.*



# 2012

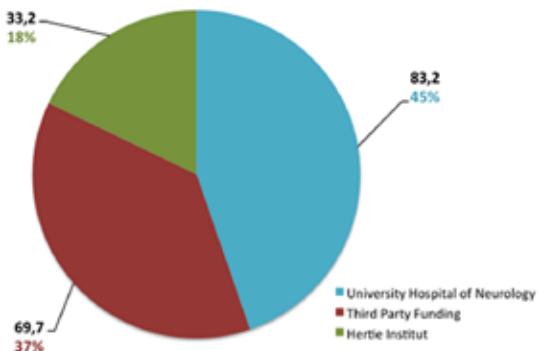
*The Department of Neurology is located on the premises of the CRONA Hospital.*

## FACTS & FIGURES

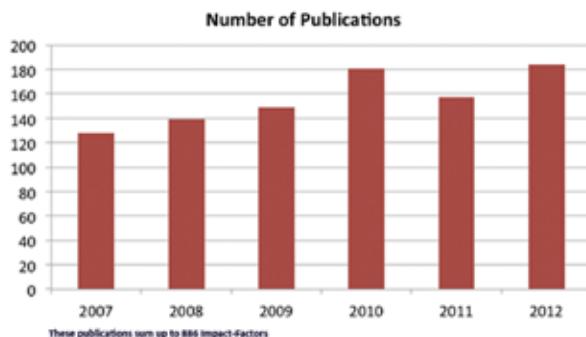


The staff at the laboratories works eagerly on the elucidation of the mysteries of brain function.

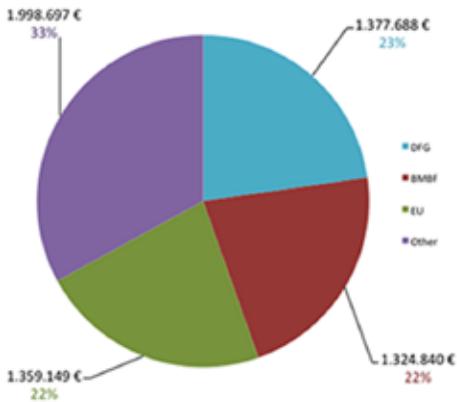
### NUMBER OF STAFF IN 2012



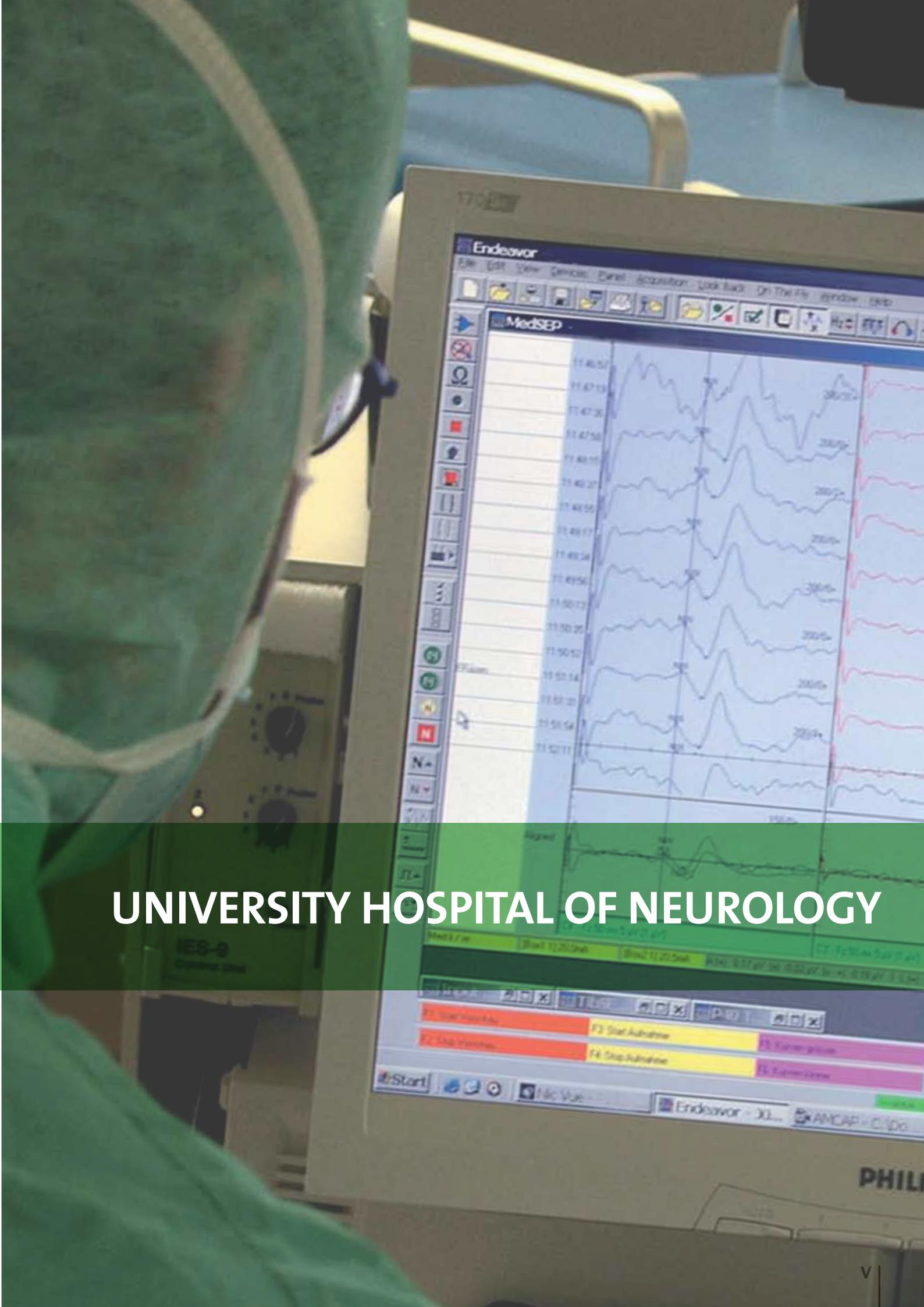
### Performance Development Research and Education



### THIRD PARTY FUNDING Total in 2012: 6,060.374 €



# UNIVERSITY HOSPITAL OF NEUROLOGY



## UNIVERSITY HOSPITAL OF NEUROLOGY

*Close monitoring of patients at the intensive care unit.*



### CLINICAL CARE

The clinical Department of Neurology of the University Hospital in Tübingen treats inpatients with the complete spectrum of neurologic diseases on four general wards. Patients with acute strokes are treated on a specialized stroke-unit which allows 24-hour surveillance and treatment. In addition, a specialized EEG-monitoring unit allows continuous long-term EEG recordings for patients with intractable epilepsies.



In the outpatient unit of the department, more than 3,000 patients are examined and treated per year, many of them in specialty clinics which are directed by recognized specialists in the respective fields. Most recently, a dementia clinic was instituted as a collaborative unit between the Department of Cellular Neurology of the HIH and the University Hospital for Psychiatry and Psychotherapy. It is headed by Professor Christoph Laske.

## CLINICAL PERFORMANCE DATA

### PATIENTENVERSORGUNG

Die Neurologische Klinik am Universitätsklinikum Tübingen behandelt Patienten mit dem gesamten Spektrum neurologischer Erkrankungen auf vier Allgemeinstationen. Darüber hinaus werden Patienten mit akuten Schlaganfällen auf einer Schlaganfall-Spezialstation („Stroke-Unit“) behandelt, die rund um die Uhr die erforderlichen Überwachungs- und Therapiemaßnahmen erlaubt. Daneben gibt es eine spezielle Einheit zur kontinuierlichen Langzeit-EEG-Ableitung (EEG-Monitoring) für Patienten mit schwer behandelbaren Epilepsien.

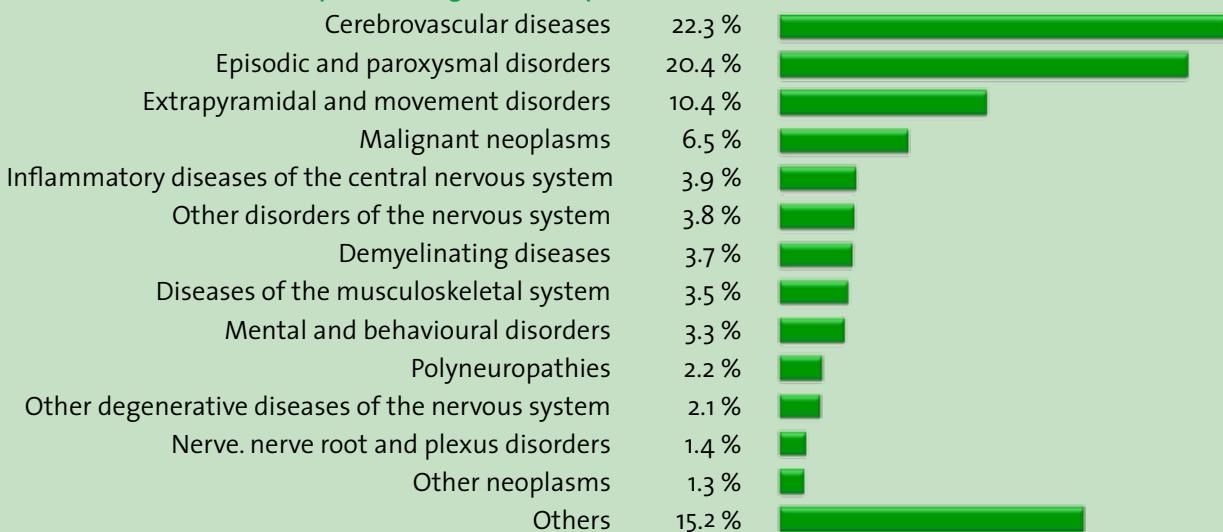
In der neurologischen Poliklinik werden mehr als 3.000 Patienten pro Jahr ambulant betreut, viele davon in Spezialambulanzen, die von ausgewiesenen Experten für die jeweiligen Erkrankungen geleitet werden. Zusätzlich zu den bereits bestehenden Spezialambulanzen wurde zuletzt gemeinsam von der Abteilung für Zelluläre Neurologie und der Universitätsklinik für Psychiatrie und Psychotherapie eine Demenzambulanz gegründet, die von Prof. Christoph Laske geleitet wird und sich speziell der Untersuchung der familiären Alzheimer-Demenz widmen soll.

### INPATIENT CARE

The inpatient units of the University Hospital for Neurology treated more than 4,500 patients in 2012.

Number of admissions	4,565
Length of stay (in days)	5
Case-Mix-Index	1,28

#### Inpatient Diagnosis Groups



### OUTPATIENT CARE

Number of consultations: 14,050



# HERTIE-INSTITUTE FOR CLINICAL BRAIN RESEARCH

Vascular Neurology  
Neurology and Epileptology  
Neurodegenerative Diseases  
Cognitive Neurology  
Cellular Neurology  
Independent Research Groups



## THE HERTIE-INSTITUTE FOR CLINICAL BRAIN RESEARCH (HIH)



### THE HERTIE-INSTITUTE FOR CLINICAL BRAIN RESEARCH (HIH)

In less than 11 years of its existence, the Hertie-Institute has grown to more than 350 employees of all levels, from technicians to PhD students to full professors. Outstanding achievements of the institute are discoveries related to the molecular, genetic and physiological basis of a number of major neurologic diseases.

The institute presently consists of five departments: Vascular Neurology, Epileptology, Neurodegeneration, Cognitive Neurology and Cellular Neurology. The fact that all departments of the center actively participate, albeit to a different degree, in the clinical care of patients with neurologic diseases is crucial to the concept of successful clinical brain research at the Hertie-Institute.

The institute is home to a total of 25 research groups, 22 of them within the aforementioned departments, three as independent junior research groups. The first of these independent groups, which has been established in 2006, has successfully passed its evaluation by the scientific advisory board of the Hertie-Institute as an independent group status.

In 2012, scientists at the Center of Neurology have obtained more than 6.0 million Euro in third party funding and have published 180 papers in peer reviewed journals.

The new head of the Department for Neurovascular Diseases (previously Department of General Neurology) Professor Ulf Ziemann joined the institute in spring 2012. In the few months since, the department has been restructured according to its new focus. It runs the large stroke-unit of the University Hospital.

As a primary care institution, all clinical departments together treat patients with the complete spectrum of neurological diseases.

Silke Jakobi has become the new head of communication in October 2012. She will be responsible for all HIH communication and public outreach activities. She will also support fundraising activities.

The new research building for the "Werner Reichardt Centre for Integrative Neuroscience (CIN)" on the Schnarrenberg neuroscience campus, which also houses HIH groups, has been completed, groups have moved in and scientific work has begun.

The planning for the new building of the partner institute of the "German Center for Neurodegenerative Diseases (DZNE)" within the Helmholtz Association is making progress as well as the setting up of DZNE Tübingen site.

Finally, the HIH played an important role in the University's application in the German federal and state government's Excellence Initiative. All these developments will ensure the long term success of the neuroscience community in Tübingen.

*Prof. Dr. Thomas Gasser  
Prof. Dr. Mathias Jucker  
Prof. Dr. Holger Lerche  
Prof. Dr. Peter Thier  
Prof. Dr. Ulf Ziemann*

## DAS HERTIE-INSTITUT FÜR KLINISCHE HIRNFORSCHUNG (HIH)

### DAS HERTIE-INSTITUT FÜR KLINISCHE HIRNFORSCHUNG (HIH)

Elf Jahre nach seiner Gründung durch die Gemeinnützige Hertie-Stiftung, die Universität Tübingen und das Universitätsklinikum Tübingen gehört das HIH auf dem Gebiet der klinischen Hirnforschung zum Spitzensfeld europäischer Forschungseinrichtungen. Herausragende Forschungsergebnisse haben das Institut auch über die Grenzen Europas hinaus bekannt gemacht. Seine Arbeitsschwerpunkte liegen im Bereich neurodegenerativer und entzündlicher Hirnerkrankungen, der Schlaganfallforschung, Epilepsien und der Erforschung der Grundlagen und Störungen von Wahrnehmung, Motorik und Lernen. Zu den bedeutenden Forschungserfolgen des HIH zählen die Entdeckung wichtiger genetischer und molekularer Grundlagen der Entstehung und Progression neurologischer Erkrankungen.

In den Abteilungen sind zurzeit 18 Professoren und etwa 350 Mitarbeiter in 25 Arbeitsgruppen tätig. Die Gemeinnützige Hertie-Stiftung wendete bisher rund 30 Millionen Euro für das HIH auf und wird ihre Förderung fortsetzen.

Im Frühjahr 2012 hat der neue Leiter der Abteilung Vaskuläre Neurologie (bisher Abteilung für Allgemeine Neurologie) Professor Ulf Ziemann seine Arbeit aufgenommen. Die Abteilung Neurologie mit Schwerpunkt neurovaskuläre Erkrankungen betreibt die

große Schlaganfall-Spezialstation der Klinik und hat sich in kurzer Zeit zu einer wichtigen Komponente des Zentrums entwickelt.

Als Einrichtungen der Primärversorgung versorgen alle Abteilungen zusammen Patienten aus dem gesamten Spektrum neurologischer Erkrankungen.

Das HIH verstärkt seine Kommunikationsaktivitäten: Silke Jakobi ist seit Oktober als Leiterin Kommunikation hierfür verantwortlich und wird sich auch in die Fundraising-Aktivitäten einbringen.

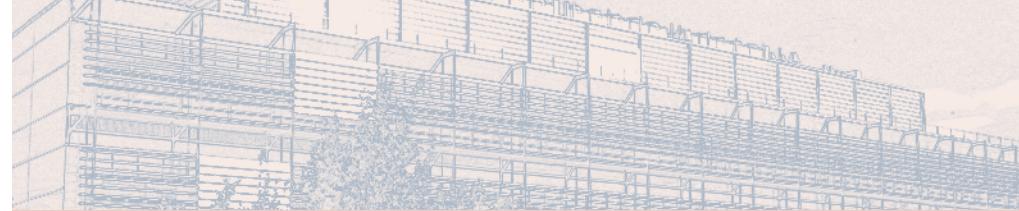
Das HIH, ein Modellprojekt für Public Private Partnership, hat auch im Jahr 2012 mehr als 6,0 Millionen Euro an Drittmitteln eingeworben und 180 Veröffentlichungen in wissenschaftlichen Fachzeitschriften publiziert. Diese Zahlen belegen u. a. die wissenschaftliche Leistungsfähigkeit des Zentrums. Die wichtige Rolle, die das HIH im Leben der Universität Tübingen spielt, wurde auch durch die intensive Beteiligung am erfolgreichen Konzept der Universität im Exzellenz-Wettbewerb deutlich.

Auch strukturell geht das HIH neue Wege. Bei den Reformansätzen gelten vor allem drei Schwerpunkte: Die Einrichtung einer Department-Struktur, die Einrichtung eines Pools von flexibel und kurzfristig einsetzbaren Fördermitteln und der Aufbau eines Modells für einen leistungsabhängigen Gehaltszuschlag für alle Mitarbeiter. Um der Größe des Hauses gerecht zu werden und um Erfahrungen aus




**Hertie-Institut**  
für klinische Hirnforschung

Geschäftsführung	Ebene 2
Kognitive Neurologie	Ebene 2
Allgemeine Neurologie	Ebene 3
Zellbiologie Neurologischer Erkrankungen	Ebene 3
Allgemeine Neurologie	Ebene 4
Neurologie mit Schwerpunkt	Ebene 4



## THE HERTIE-INSTITUTE FOR CLINICAL BRAIN RESEARCH (HIH)



The Parkinson Laboratory at the Hertie-Institute for Clinical Brain Research in Tübingen: Fragmented DNA material is analyzed by electrophoretic means.

den letzten zehn Jahren einfließen lassen zu können, wurde im Jahr 2012 die Governance des HIH überarbeitet. Ein weiterer innovativer Aspekt des HIH ist die Einrichtung von abteilungsunabhängigen Junior Arbeitsgruppen im „Tenure Track-Verfahren“. Die erste dieser Arbeitsgruppen, die sich schwerpunktmäßig mit neuro-regenerativen Prozessen des Rückenmarks beschäftigt, wurde im Frühjahr 2006 eingerichtet und 2010 aufbauend auf einer erfolgreichen internationalen Evaluierung in eine selbstständige Arbeitsgruppe umgewandelt.

Die zweite Gruppe mit Fokus auf der Untersuchung synaptischer Plastizität im Drosophila-Modell wurde Ende 2008 etabliert und im Rahmen einer internationalen Evaluation 2011 verlängert.

Eine besondere Bedeutung für die Zukunft des Zentrums kommt auch seiner Beteiligung an der erfolgreichen Bewerbung von Tübingen als Partnerstandort des „Deutschen Zentrums für Neurodegenerative Erkrankungen, DZNE“ zu. Die Etablierung dieses Partnerstandortes ermöglicht die langfristige Sicherung von Forschungsmitteln und führt zu einer erheblichen Stärkung des neurowissenschaftlichen Standorts.

Nach einer dreijährigen Bauphase konnte im Frühjahr 2012 der Neubau des Werner-Reichardt Centrums für Integrale Neurowissenschaften (CIN), das direkt gegenüber dem HIH liegt, bezogen werden. Auch Forschungsgruppen des HIH haben in diesem Forschungsbau ihre Arbeit aufgenommen.

Prof. Dr. Thomas Gasser  
Prof. Dr. Mathias Jucker  
Prof. Dr. Holger Lerche  
Prof. Dr. Peter Thier  
Prof. Dr. Ulf Ziemann



**Hertie Institute**  
for Clinical Brain Research



# ANNUAL REPORT

## UNIVERSITY HOSPITAL OF NEUROLOGY

### Head of Nursing Services

Renate D. Fuhr (PDL, since 11/2012)  
Monika Renner (stellv. PDL)  
Klaus Siegle (Stationsltg. 45/43)  
Bärbel Hauger (Stationsltg. 42)  
Aika Heinzelmann (Stationsltg. 40/41)  
Lieselotte Wollny (PDL until 11/2012)

Beate Kloster  
Olga Krämer  
Jürgen Kronmüller  
Stefanie Kurz  
Andrea Langmann  
Rosemarie Mahler  
Dorothe Pachollek  
Lilia Rejaibia  
Martina Schaible  
Hans-Jürgen Scholpp  
Karola Schweinbenz

Annette Eisele  
Martina Gockner  
Martin Grunwald  
Joachim Kraus  
Michelle Schumann  
Benjamin Wurster  
Lilli Ziaja

Anja Siegle  
Lena Stengel  
Eva-Maria Stratmann  
Isabel Utsch-Sellnow  
Birgit Weimar

### Station 41

### Pflegehelfer

Anja Hutter  
Renate Maier-Korneck  
Iris Sadowski  
Ulrike Schweizer  
Sarah Sciarrone  
Gudrun Siegl

Irina Amosenka  
Barbara Dangel  
Rebecca Hummel  
Iryna Kontokostas  
Gabriele Layla  
Daria Noman  
Emily Paul  
Inga Zengerle

### Station 42

### Intensive Care/Stroke Unit

Christina Assenheimer  
Sigurd Baltes  
Carola Baur  
Susanne Becht  
Merike Besser  
Friedhelm Chmell  
Hanna Eisele  
Britta Eisemann  
Isaac Emwinghare-Ekhague  
Rebecca Fais  
Maria Flohr  
Marita Gockle  
Tatjana Graz  
Werner Hansen  
Helena Henger  
Sigrid Herter  
Annika Hesse  
Michael Heymann  
Alice Hoffmann  
Eva Kern

Karin Brunner  
Monika Foll  
Steffie Fuchs  
Tobias Göttermann  
Susanne Grumann  
Carmen Haag  
Frank Hauber  
Ilona Jankowsky  
Regina Johner  
Eftimia Kalpakli  
Petra Kaschowitz  
Dominik Kleck  
Heike Kübler  
Ines Lange  
Christine Löw  
Samanta Mekanovic  
Jessica Meiß  
Annette Mögle  
Christine Moosmann



Birgit Moryson  
Markus Müller  
Nora Müller  
Petra Nipprasch  
Christine Reuter  
Claudia Romeikat  
Gloria Sementilli  
Mirijam Schäfer  
Johann Schmuck  
Thyra Schmuck  
Tanja Stiebich  
Lothar Villinger  
Angelika Weber  
Gerda Weise  
Bettina Weisser  
Eva Wener-Buck  
Barbara Werner  
Ulrike Zimmermann

### Medical Documentation

Sonja Brandner  
Christine Brick  
Horst Feuerbacher

### Case/Occupancy Management

Ulrich Braun  
Silvia Clement  
Wilhelm Eissler  
Christina Tomschitz

### Technicians

Margarete Dengler (EEG)  
Anke Deutsch (EP)  
Evelyn Dubois (CFS Chemistry)  
Siegfried Ebner (CSF Chemistry)  
Andrea Eckert (CSF Chemistry)  
Carry Friedrich (ENG)  
Jutta Grimm (EMG)  
Renate Mahle (EEG, Neurosonography)  
Petra Schroth (CSF Chemistry)  
Nathalie Vetter (ENG, Neurosonography)  
Barbara Wörner (EEG)

### Secretaries

Isolde Marterer  
Jutta Miller  
Christine Riegraf  
Annette Schmid  
Susanne Stimmller  
Diana Thomma  
Doris Wieder

# ANNUAL REPORT

## DEPARTMENT OF VASCULAR NEUROLOGY

### CLINICAL AND SCIENTIFIC STAFF

#### Head of the Department

Prof. Dr. Ulf Ziemann (since 05/2012)  
Prof. Dr. Arthur Melms (Acting-Chairman until 04/2012)

#### Group leaders/Attending physicians

Prof. Dr. Herrmann Ackermann  
PD Dr. Felix Bischof  
Dr. Jennifer Diedler (Neurointensive Care, since 10/2012)  
Dr. Jite Erharhaghen (Neuro-Cardiology, until 05/2012)  
PD Dr. Ulrike Naumann  
Dr. Sven Poli (since 10/2012)  
Dr. Christine Zürn (Cardiologist, since 06/2012)

#### Scientists/Residents

Dr. Eleni Adamopoulou  
Dr. Christian Braun  
Dr. Matthias Ebener (since 10/2012)  
Dr. Katharina Friebe  
Christian Frischholz  
PD Dr. Ingo Hertrich  
Oliver Preische  
Dr. Carin Schilling (since 10/2012)  
Dr. Simon Schuster  
Dennis Schlak  
Martin Wolf  
Dr. Lena Zeltner

#### Technical staff/Administration

Dipl.-Ing. Rüdiger Berndt (Electronics, together with the Dept. of Cognitive Neurology)  
Evelyn Dubois  
Siegfried Ebner  
Andrea Eckert  
Marion Jeric  
Ute Küstner  
Christine Ruth (since 11/2012)  
Petra Schroth

#### Medical Doctoral Student

Heiko Brennenstuhl (Supervisor PD Dr. Naumann)  
Hanna Faber (Supervisor Prof. Dr. Ziemann)  
Sandra Falkvoll (Supervisor PD Dr. Bischof)  
Julia Glatzner (Supervisor PD Dr. Bischof)  
Ruth Hass (Supervisor PD Dr. Bischof)

Elisabeth Hörig (Supervisor PD Dr. Naumann)  
Eloisa Mierswa-Silva (Supervisor PD Dr. Bischof)  
Johannes Mörike (Supervisor PD Dr. Bischof)  
Jan Piel (Supervisor PD Dr. Bischof)  
Toni Silber (Supervisor PD Dr. Bischof)  
Marie Süße (Supervisor Prof. Dr. Ziemann)  
Natalia Tveriakhina (Supervisor PD Dr. Bischof)  
Frabrina Wiessing (Supervisor PD Dr. Bischof)



### PhD Students

Kirsi Forsberg (Supervisor PD Dr. Bischof)  
Oliver Podlech (Supervisor PD Dr. Naumann)  
Janina Seznec (Supervisor PD Dr. Naumann)  
Björn Silkenstedt (Supervisor PD Dr. Naumann)

### Master Students

Shohag Bhattacharyya (Supervisor PD Dr. Naumann)  
Svenja Espenhahn (Supervisor Prof. Dr. Ziemann)  
Jennifer Rubel (Supervisor PD Dr. Naumann)

### Professorship for Neurorehabilitation

Prof. Dr. H. Ackermann  
PD Dr. Ingo Hertrich

## CLINICAL STUDIES

WA 21493: A Phase II, multicenter, randomized, placebo and Avonex controlled dose finding study to evaluate the efficacy and safety of ocrelizumab in patients with relapsing-remitting multiple sclerosis.

Investigators: Arthur Melms (until 05/2012), Ulf Ziemann (since 06/2012), Felix Bischof

WA21092: A Randomized, Double-Blind, Double-Dummy, Parallel-Group Study To Evaluate The Efficacy And Safety Of Ocrelizumab In Comparison To Interferon Beta-1a (Rebif®) In Patients With Relapsing Multiple Sclerosis

Investigators: Arthur Melms (until 05/2012), Ulf Ziemann (since 06/2012), Felix Bischof

WA25046: A Phase III, multicentre, randomized, parallel-group, double blinded, placebo controlled study to evaluate the efficacy and safety of ocrelizumab in adults with Primary Progressive Multiple Sclerosis.

Investigators: Arthur Melms (until 05/2012), Ulf Ziemann (since 06/2012), Felix Bischof

CFTY720DDE17 (START): A 1-week, open-label, multi-center study to explore conduction abnormalities during first dose administration of Fingolimod in patients with relapsing-remitting multiple sclerosis.

Investigator: Felix Bischof

# ANNUAL REPORT

## DEPARTMENT OF VASCULAR NEUROLOGY

CFTY720DDEo6: A 21-week, multicenter, open label study to evaluate the safety and tolerability profile of the combination of a SSRI or SNRI antidepressive therapy with oral fingolimod in the treatment of RRMS patients with mild to moderate depression

Investigator: Felix Bischof

CFTY720D2399: A single arm, open-label, multicenter study evaluating the long-term safety, tolerability and efficacy of a 0.5 mg fingolimod (FTY720) administered orally once daily in patients with multiple sclerosis.

Investigators: Arthur Melms (until 05/2012), Ulf Ziemann (since 06/2012), Felix Bischof

CFTY720DDEo1: A 6 months multicenter, single-arm, open-label study to investigate changes in biomarkers after initiation of treatment with 0,5 mg fingolimod (FTY720) in patients with relapsing-remitting multiple sclerosis.

Investigator: Felix Bischof

CFTY720D2324: Eine 32-wöchige Patienten- und Auswerter-verblindete, randomisierte, multizentrische Parallelgruppenstudie zur Beurteilung der Krankheitskontrolle und Sicherheit bei Patienten mit schubförmig remittierender Multipler Sklerose, die von einer vorherigen Behandlung mit Natalizumab auf Fingolimod (FTY720) umgestellt werden.

Investigator: Felix Bischof

Kompetenznetz MS: Concerted Action on Biomarker for Individualized Multiple Sclerosis Therapy in Germany – Control MS: Prospektive Kohortenstudie bei Patienten mit KIS (klinisch isoliertem Syndrom) und früher Multipler Sklerose.

Investigator: Ulf Ziemann (since 12/2012)

ONO 4641POUoo7: A double-blind, placebo-controlled study of the safety and efficacy of ONO-4641 in patients with relapsing-remitting multiple sclerosis.

Investigators: Arthur Melms (until 05/2012), Ulf Ziemann (since 06/2012), Felix Bischof

CFTY720DDEo2: Multizentrische, prospektive, nicht-interventionelle Langzeit-Registerstudie zur Beschreibung der Sicherheit und des Stellenwerts von Gilenya® (fingolimod 0.5 mg) in der Behandlung von MS Patienten. Akronym PANGAEA: Post-Authorization non-interventional German safety study of Gilenya® in MS patients

Investigator: Felix Bischof

MOVE-1: Beobachtungsstudie – zur retrospektiven Datenerhebung zu Versorgung, Krankheitskosten und Lebensqualität bei Multiple Sklerose Patienten mit Spastik in Deutschland.

Investigator: Felix Bischof

MOVE-2: multizentrische, prospektive Beobachtungsstudie, kombiniert mit einer Patientenbefragung in Deutschland. Die Studie wird über einen Zeitraum von 3 Monaten für alle Patienten durchgeführt, die auf Sativex® eingestellt wurden (Responder/Non-Responder).

Investigator: Felix Bischof

Percept: Nicht-interventionelle, beobachtend, prospektiv, open label, multizentrische Studie bei Patienten mit schubförmig-remittierender Multipler Sklerose in Deutschland, bei denen eine Therapie mit TYSABRI® indiziert ist und in der klinischen Routine durchgeführt wird.

Investigator: Felix Bischof

**101MS326 (ASCEND): A Multicenter, Randomized, Double-Blind, Placebo-Controlled Study of the Efficacy of Natalizumab on Reducing Disability Progression in Subjects With Secondary Progressive Multiple Sclerosis.**

Investigator: Felix Bischof

**101-MS-206 (REFINE): A Randomized, Blinded, Parallel-Group, Phase 2 Study Exploring the Safety, Tolerability, and Efficacy of Multiple Regimens of Natalizumab in Adult Subjects With Relapsing Multiple Sclerosis.**

Investigators: Arthur Melms (until 05/2012), Ulf Ziemann (since 06/2012), Felix Bischof



**218MS403: An Open-Label, Multicenter, Multinational Study to Assess the Effect of Long-Term Prolonged-Release Fampridine (BIIBo41) 10 mg Twice Daily on Quality of Life as Reported by Subjects with Multiple Sclerosis.**

Investigators: Arthur Melms, Felix Bischof

**SIGNS: An open, uncontrolled, non-interventional observational cohorte outcome study of immunoglobulins in 3 indications: primary and secondary immunodeficiencies and neurological auto- immune disease.**

Investigator: Christian Frischholz

**Glarius: Randomisierte, offene, multizentrische Phase II Studie zum Einsatz von Bevacizumab und Strahlentherapie gefolgt von Bevacizumab und Irinotecan im Vergleich zu Temozolomide und Strahlentherapie gefolgt von Temozolomid bei Patienten mit neu diagnostiziertem Glioblastom und nicht methyliertem MGMT-Promotor.**

Investigator: Christian Braun

**EORTC 26101: Phase II trial exploring the sequence of bevacizumab and lomustine in patients with first recurrence of glioblastoma.**

Investigator: Christian Braun

**CATNON Intergroup Trial (EORTC 26053): Phase III trial on concurrent and adjuvant temozolamide chemotherapy in non-1p/19q deleted anaplastic glioma.**

Investigator: Christian Braun

**CODELETER Intergroup Trial (EORTC26081): Phase II randomized trial assessing intergroup study of radiotherapy versus temozolomide versus radiotherapy with concomitant and adjuvant temozolomide for patients with newly diagnosed anaplastic oligodendrogloma or anaplastic mixed glioma with chromosomal co-deletions of 1p and 19q.**

Investigator: Christian Braun

**EORTC 22033: Primäre Chemotherapie mit Temozolomid versus Radiotherapie bei Patienten mit niedriggradigen Gliomen nach Stratifizierung für den genetischen 1p-Verlust:**

**Eine Phase III Studie.**

Investigator: Christian Braun

**OSAG 101: Phase III Studie zum Vergleich von Standard Radiotherapie mit gleichzeitiger und adjuvanter Verabreichung von OSAG 101 (Theraloc®) und Temozolomid gegen Standard Radiotherapie mit gleichzeitiger und adjuvanter Verabreichung von Temozolomid bei Patienten mit neu diagnostiziertem, histologisch bestätigtem Glioblastoma multiforme Grad IV.**

Investigator: Arthur Melms

# ANNUAL REPORT

## DEPARTMENT OF VASCULAR NEUROLOGY

### THIRD-PARTY FUNDING

#### Ongoing Grants

##### **Perzeption ultraschneller synthetischer Sprache: Mechanismen der Neuroplastizität auditiver Sprachwahrnehmung bei Blinden (AC55/9-1)**

Project leader: Prof. Dr. Hermann Ackermann, MA

Prof. Dr. E. Zrenner

Funding institution: Deutsche Forschungsgemeinschaft (DFG)

Funding period: 09/2010 – 08/2014

Awarded on: June 23, 2010

##### **Neuronale Kontrolle sprachlicher und nichtsprachlicher Bewegungen des Sprechbewegungsapparates: Klinische Untersuchungen (AC55/10-1)**

Project leader: Prof. Dr. Wolfram Ziegler Ackermann,

Prof. Dr. Hermann Ackermann, MA

Funding institution: Deutsche Forschungsgemeinschaft (DFG)

Funding period: 06/2011 – 05/2014

Awarded on: May 16, 2011

##### **Erforschung der molekularen Mechanismen einer ISCADOR Behandlung des Glioblastoms**

Project leader: PD Dr. Ulrike Naumann

Funding institution: Hans Sauer Stiftung, Innovationstiftung Sauer

Funding period: 01/2009 – 06/2012

Awarded on: December 4, 2008

##### **Einfluss von Interferon beta-1a auf die Oberflächenglykosylierung von Immunzellen bei Patienten mit schubförmiger Multipler Sklerose**

Project leader: PD Dr. Felix Bischof

Funding institution: Merck Serono

Funding period: 01/2010 – 12/2012

Awarded on: September, 2010

#### New Grants

##### **Toleranz und Autoimmunität im Zentralen Nervensystem**

Project leader: PD. Dr. Felix Bischof

Funding institution: Novartis

Funding period: 03/2012 – 12/2014

Awarded on: March, 2012

### **Fingolimod for treating neural dyscoordination in the working memory network of RRMS**

Project leader: Prof. Dr. Ulf Ziemann  
Funding institution: Novartis  
Funding period: 10/2012 – 12/2015  
Awarded on: October 22, 2012



### **Funktionelle und therapeutische Bedeutung des Neuropeptid-prozessierenden Enzyms Carboxypeptidase E im Glioblastom**

Project leader: PD. Dr. Ulrike Naumann  
Funding institution: German Cancer Foundation  
Funding period: 02/2013 – 01/2016  
Awarded on: November 8, 2012

### **Pharmacological characterization of TMS-EEG biomarkers of excitability and effective connectivity in human cortex**

Project leader: Prof. Dr. Ulf Ziemann  
Funding institution: Werner Reichardt Centre for Integrative Neuroscience (CIN)  
Funding period: 2012  
Awarded on: November 11, 2012

### **Verarbeitung multimodaler emotionaler Signale bei Patienten mit Multipler Sklerose**

Project leader: PD. Dr. Felix Bischof  
Funding institution: Novartis  
Funding period: 12/2012 – 12/2014  
Awarded on: December, 2012

## **PHD THESES (COMPLETED IN 2012)**

Applicant: Xiaochen Hu  
**The dynamics of second language aptitude for pronunciation: Behavioral predictors and neural substrates**  
Supervisor: Prof. Dr. Hermann Ackermann, MA

Applicant: Krystyna Anna Mathiak  
**Brain correlates of social interactions studied with fMRI: Applying improved methodology and naturalistic paradigms**  
Supervisor: Prof. Dr. Hermann Ackermann, MA

Applicant: Janina Seznec  
**Identifikation und Charakterisierung CTS-1-regulierter, Resistenz-modulierender Gene im malignen Gliom**  
Supervisor: PD Dr. Ulrike Naumann

# ANNUAL REPORT

## DEPARTMENT OF VASCULAR NEUROLOGY

Applicant: Kyriakos Sideropoulos  
Zerebrale Korrelate auditiv-zeitlicher Verarbeitung bei hirngeschädigten Patienten  
Supervisor: Prof. Dr. Hermann Ackermann, MA

Applicant: Björn Silkenstedt  
Strategien der XIAP-Depletion im Glioblastom - Therapeutische Effekte des  
Sp1 Inhibitors Mithramycin A  
Supervisor: PD Dr. Ulrike Naumann

## DIPLOMA/MASTER THESES (COMPLETED IN 2012)

Applicant: Shohag Bhattacharyya  
Exploration of cellular pathways involved in the pro-proliferative and anti-migratory  
effects of Carboxypeptidase E in Glioblastoma  
Supervisor: PD Dr. Ulrike Naumann  
Faculty: Graduate School for Cellular Neurosciences, Tübingen

## HABILITATION

Applicant: Bernhard Heinrich Greve  
Komplex-genetische Regulation von Autoimmunerkrankungen:  
von Mäusen und Menschen

## STUDENT TRAINING

### Lectures (Summer Term/Winter Term)

**Brain Tumors**  
Faculty: Genetic and Molecular Basis of Neural Diseases II, School of  
Coordinator: PD Dr. Ulrike Naumann

## LAB ROTATIONS

*Winter Term 2011/2012*

Shohag Bhattacharyya

**Cytoskeleton alterations in GBM after CPE overexpression**

Coordinator: PD Dr. Ulrike Naumann



*Summer Term 2012*

Katharina Böhm

**Cloning of an adenovirus expressing a truncated version of cGKI fused to GFP s**

Coordinator: PD Dr. Ulrike Naumann

Jennifer Rubel

**Influence of CPE on “Go or Grow” in Glioblastoma – Modulation of intracellular signaling pathways**

Coordinator: PD Dr. Ulrike Naumann

# ANNUAL REPORT

## DEPARTMENT OF NEUROLOGY AND EPILEPTOLOGY

### CLINICAL AND SCIENTIFIC STAFF

#### Head of the Department

Prof. Dr. Holger Lerche

#### Group leaders/Attending physicians

PD Dr. Marcel Dihné

Dr. Niels Focke (since 07/2012)

PD Dr. Tobias Schmidt-Wilcke (until 05/2012)

PD Dr. Yvonne Weber

#### Scientists/Residents

Felicitas Becker

Merle Bock

Dr. Nele Dammeier

Natalie Dorst

Yvonne Füll

Dr. Ulrike Hedrich

Dr. Barbara Kieninger (until 04/2012)

Dr. Daniel Kirschenbaum

Dr. Silke Klamer

Dr. Henner Koch

Martina Krautwald (until 04/2012)

Cristina Niturad

Dr. Yuanyuan Liu

Pascal Martin

Dr. Snezana Maljevic

Stephan Müller

Dr. von der Ohe (08/2012 - 11/2012)

Dr. Gökce Orhan (until 03/2012)

Christina Schneider

Julian Schubert

Dr. Georgeta Teodorescu

Dr. Teresa Ulrich (until 09/2012)

Dr. Janine Walter

Dr. Stephan Wolking

Dr. Thomas Wuttke

Mariana Zaichuk

#### Technical staff/Administration

Yasemin Colakoglu

Jane Gollub

Christian Hengsbach

Nicole Jezutkovic

Heidrun Löffler

Sarah Rau

Annette Schmid

## Medical Doctoral Students

Judith Kempfle  
Julia Knaus  
Stephan Lauxmann  
Andreas Naros  
Theresa Schneider  
Niklas Schwarz  
Anna Wagner

## CLINICAL STUDIES

Retigabine-Study: An Open-Label, Flexible-Dose Study of Retigabine immediate Release (IR) as Adjunctive Therapy to Specified monotherapy Antiepileptic Treatments in Adults with Partial-Onset Seizures. (GlaxoSmithKline Research & Development Limited)  
Investigator: Holger Lerche



UCB Phase 1b Study (UPooo2): A multicenter open-label parallel-group study in male and female subjects with epilepsy to evaluate the effect of repeated oral doses of UCB0942on the pharmacogenetics of carbamazepine-epoxide and the pharmacokinetics safety and tolerability of repeated oral doses of UCB0942 in the presence of concomitant antiepileptic drugs.  
Investigator: Yvonne Weber

Vitoba (SPo973): Eine nicht-interventionelle Beobachtungsstudie zur Evaluation der Verträglichkeit und der Anfallskontrolle mit VIMPAT als Zusatztherapie zu einem Basisantiepileptikum bei Epilepsiepatienten mit fokalen Anfällen mit oder ohne sekundärer Generalisierung in der alltäglichen klinischen Praxis in Deutschland. (UCB)  
Investigator: Yvonne Weber

Vimpat i. v. Study/Registry: Einsatz von Lacosamid (Vimpat) i. v. in der klinischen Praxis (Universitätsklinikum Kiel, Prof. Dr. med. U. Stephani)  
Investigator: Yvonne Weber

Eslicarbazepine Study (BIA-2093-311): An Open-Label, Flexible-Dose Study of Retigabine immediate Release (IR) „Efficacy and Safety of Eslicarbazepine Acetate (BIA 2-093) as Monotherapy for Patients with newly diagnosed Partial-Onset Seizures: A Double-Blind, Randomized, Active-Controlled, Parallel-Group, Multicenter Clinical Study. (Bial, Scope International)  
Investigator: Yvonne Weber

Victos (SP1065): A non-interventional, observational study evaluating changes in total drug load and seizure frequency using Vimpat (Lacosamide) in daily clinical practice in combination therapy with sodium channel blocking AEDs or non sodium channgel blocking AEDs (Victos).  
Investigator: Yvonne Weber

Perampanel Study (Eisai332): A Double-blind, randomized, Placebo-controlled, Multicenter, Parallel-group Study with anOpen-label Extension Phase to Evaluate the Efficacy and Safety of Adjunctive Perampanelin Primary generalized Tonic-Clonic Seizures. (Eisai Inc. and Eisai Limited/PPD Germany GmbH)  
Investigator: Yvonne Weber

# ANNUAL REPORT

## DEPARTMENT OF NEUROLOGY AND EPILEPTOLOGY

### THIRD-PARTY FUNDING

#### Ongoing Grants

##### Epilepsy and Migraine Integrated Network, 'Functional analysis of human ion channel mutations in cellular and animal models' (EMINet)

Project leader: Prof. Dr. Holger Lerche  
Funding institution: Federal Ministry of Education and Research (BMBF: Nationales Genomforschungsnetz, NGFNplus)  
Funding period: 05/2008 – 04/2013  
Awarded on: May 15, 2008

##### Rekrutierung von Patienten für genetische und pharmakogenetische Untersuchungen bei Epilepsien

Project leader: Prof. Dr. Holger Lerche, PD Dr. Yvonne Weber  
Funding institution: Deutsche Gesellschaft für Epileptologie und UCB Pharma  
Funding period: 2010 – 2012  
Awarded on: May 11, 2010

##### Generierung humaner, funktioneller neuronaler Netzwerke durch Kombination von Mikroelektroden Array- und embryonaler Stammzell-Technologie, ESSENCE

Project leader: PD Dr. Marcel Dihné  
Funding institution: Federal Ministry of Education and Research (BMBF)  
Funding period: 2010 – 10/2013  
Awarded on: April 12, 2011

##### Pharmacogenomics in the treatment of epilepsy' (IZEPHA) Twinning Grant

Project leader: Prof. Dr. Holger Lerche  
Funding institution: 50% Robert-Bosch-Foundation,  
50% University of Tübingen  
Funding period: 12/2011 – 11/2012  
Awarded on: 2009

##### EuroEPINOMICS-FP-005: Complex genetics of Idiopathic Epilepsy (CoGIE)

Project leader: Prof. Dr. Holger Lerche (coordinator), Dr. Snezana Maljevic  
Funding institution: Deutsche Forschungsgemeinschaft DFG (via ESF EUROCORES)  
Funding period: 07/2011 – 12/2014  
Awarded on: May 3, 2011

##### Epilepsy Pharmacogenomics: delivering biomarkers for clinical use (EpiPGX)

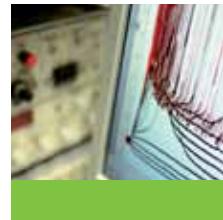
Project leader: Prof. Dr. Holger Lerche (Deputy speaker)  
Funding institution: EU/FP7 (EU-279062)  
Funding period: 11/2011 – 12/2015  
Awarded on: July 2011

### **German Network of Neurological and Ophthalmological Ion Channel Disorders (IonNeurONet)**

Project leader: Prof. Dr. Holger Lerche (Network-Coordinator),  
Dr. Snezana Maljevic (Project leader)  
Funding institution: Federal Ministry of Education and Research  
(BMBF: Netzwerk “Seltene Erkrankungen”)  
Funding period: 03/2012 – 03/2015  
Awarded on: September 16, 2011

### **Multimodale Bildgebung bei idiopathischen generalisierten Epilepsien**

Project leader: Dr. Silke Klamer  
Funding institution: University of Tübingen (Pate)  
Funding period: 03/2012 – 02/2014  
Awarded on: November 2011



### **Multimodal spike localization in non-lesional focal epilepsies**

Project leader: Prof. Dr. Holger Lerche, Dr. Hubert Preissl,  
Prof. Dr. Klaus Scheffler  
Funding institution: University of Tübingen (CIN pool project)  
Funding period: 01/2012 – 12/2013  
Awarded on: November 2011

### **New Grants**

**DFG-Großgeräteantrag zur Beschaffung eines hochauflösenden 256-Kanal EEG-Systems, MRT - und MEG-kompatibel und hochauflösende (high-density) Elektroenzephalographie (HD-EEG) zur Lokalisation pathologischer und physiologischer Hirnaktivität (Entwicklungsantrag)**

Project leader: Prof. Dr. Holger Lerche  
Funding institution: Deutsche Forschungsgemeinschaft (DFG),  
University of Tübingen (AKF)  
Funding period: 03/2012 – 10/2013  
Awarded on: March, 2012, November 2012  
Coordinator: Prof. Dr. Holger Lerche

### **Gen-Panel Diagnostik bei Patienten mit Epilepsie**

Project leader: PD Dr. Yvonne Weber  
Funding institution: Universität Tübingen (AKF)  
Funding period: 01/2013 – 12/2013  
Awarded on: November, 2012

### **Evaluating voxel-based functional connectivity measures in epilepsy**

Project leader: Dr. Niels Focke  
Funding institution: University of Tübingen (CIN pool project)  
Funding period: 01/2013 – 12/2014  
Awarded on: November, 2012

# ANNUAL REPORT

## DEPARTMENT OF NEUROLOGY AND EPILEPTOLOGY

**Entwicklung eines neuartigen Stammzell-basierten Biosensors zur Detektion metabolischer Enzephalopathien im Rahmen akuter neurologischer Erkrankungen**

Project leader: PD Dr. Marcel Dihné  
Funding institution: University of Tübingen (AKF)  
Funding period: 01/2013 – 12/2013  
Awarded on: March, 2012

## CONFERENCES

### Young Neurologists Summer School 2012

30.07.-03.08.2012

Scientific Coordinators: Prof. Dr. Holger Lerche, Dr. Tobias Wächter

### 51. Jahrestagung der Deutschen Gesellschaft für Epileptologie, Stuttgart

29.02.-03.03.2012

Scientific Coordinators: Prof. Dr. Holger Lerche, PD Dr. Yvonne Weber

### Fortbildung Neurologie

12.05.2012

Scientific Coordinators: Prof. Dr. Thomas Gasser, Prof. Dr. Holger Lerche,  
Prof. Dr. Daniela Berg

### Veranstaltung zum Tag der Epilepsie, Tübingen

23.10.2012

Scientific Coordinator: PD Dr. Yvonne Weber

## STUDENT TRAINING

### Lectures (Summer Term/Winter Term)

#### Genetic and Molecular Basis of Neural Diseases II: Channelopathies

Faculty: Graduate School of Cellular and Molecular Neuroscience  
Coordinators: Prof. Dr. H. Lerche, Dr. S. Maljevic

#### Hauptvorlesung Neurologie

Faculty: Faculty of Medicine  
Coordinators: Prof. Dr. H. Lerche, Prof. Dr. T. Gasser, Prof. Dr. U. Ziemann

#### TÜKLiS Klinisches pharmakologisches Fallseminar PJ-Unterricht

Faculty: Dept. of Neurology and Epileptology, Hertie Institute of Clinical Brain Research, Center of Neurology,  
University of Tübingen  
Coordinator: Prof. Dr. H. Lerche

### **EEG-Seminar/Epilepsie-Fallbesprechung**

Faculty: Dept. of Neurology and Epileptology, Hertie Institute of Clinical Brain Research, Center of Neurology,  
University of Tübingen  
Coordinators: Prof. Dr. H. Lerche, PD Dr. Y. Weber

### **Wissenschaftliches Kolloquium**

Faculty: Dept. of Neurology and Epileptology, Hertie Institute of Clinical Brain Research, Center of Neurology,  
University of Tübingen  
Coordinator: Prof. Dr. H. Lerche

### **Ringvorlesung Grundlagen der Neurobiologie – Teil I: Ion channels and disease**

Faculty: Bachelor-Studiengang Molekulare Medizin SS2012,  
Faculty of Medicine  
Coordinator: Dr. S. Maljevic



### **Promotionskolleg Ringvorlesung: Ion Channels and Epilepsy**

Faculty: Faculty of Medicine  
Coordinators: Prof. Dr. H. Lerche, Dr. S. Maljevic

### **Seminars and Courses**

#### **Mini-Fellowship AG Epilepsiechirurgie**

Host: Dr. N. Focke, PD Dr. M. Dihné, Dr. S. Maljevic, Dr. S. Klamer,  
Dr. U. Hedrich  
Coordinator: Dr. S. Rona, Prof. H. Lerche, PD Dr. Y. Weber

#### **IPSC Journal Club**

Host: Dr. S. Maljevic, Dr. O. Rothfuss, B. Schmid  
Coordinator: Dr. S. Maljevic

## **LAB ROTATIONS**

*Winter Term 2012/2013*

Elena I. Ilina

**Effects of a novel antiepileptic drug – Retigabine – on KCNQ2 mutations associated with epileptic encephalopathies**

Coordinator: Dr. S. Maljevic

# ANNUAL REPORT

## DEPARTMENT OF NEURODEGENERATIVE DISEASES

### CLINICAL AND SCIENTIFIC STAFF

#### Head of the Department

Prof. Dr. Thomas Gasser

#### Group leaders/Attending physicians

Prof. Dr. Daniela Berg  
Dr. Dr. Saskia Biskup  
Prof. Dr. Philipp Kahle  
Prof. Dr. Rejko Krüger  
PD Dr. Walter Mätzler  
Prof. Dr. Ludger Schöls  
Dr. Tobias Wächter

#### Scientists/Residents

Dr. Anja Apel  
PD Dr. Sorin Breit  
Dr. Kathrin Brockmann  
Andres Caballero  
Michela Deleidi  
Maik Engeholm  
Dr. Julia Fitzgerald (since 05/2012)  
Dr. Natalja Funk  
Claudia Funke  
Dr. Alexandra Gaenslen  
Marta Garcia-Miralles  
Dr. Sven Geisler  
Dr. Jana Godau  
Dr. Adriane Gröger  
Dr. Kathrin Karle  
Dr. Guido Krebiehl (until 04/2012)  
Martin Kuss  
Dr. Stefanie Lerche  
Dr. Rajka Liscic  
Dr. Carina Mielke  
Dr. Jennifer Müller vom Hagen  
Carolin Obermaier  
Ekaterina Otroshchenko  
Emmy Rannikko  
Erik Riesch  
Dr. Julia Schicks  
Dr. Olga Scheck  
Benjamin Schmid  
David Schöndorf  
Dr. Rebecca Schüle  
Claudia Schulte

Dr. Manu Sharma  
Dr. Karin Sruljies  
Ulrike Sünkel  
Dr. Matthis Synofzik  
Catherine Thömmes  
Dr. Daniel Weiss  
Dr. Sarah Wiethoff  
Dr. Isabel Wurster

### Technical staff/Administration

Maren Albers  
Cindy Boden  
Christian Deuschle  
Christian Erhardt  
Dr. Bettina Faust  
Katharina Gauss  
Christine Haaga  
Tanja Heger  
Mirjam Knöll  
Tilman König  
Brigitte Maurer  
Corina Maetzler  
Petra Mech  
Marita Munz  
Dr. Angelika Oehmig  
Clara Pless  
Ina Posner  
Jennifer Reichenbauer  
Franziska Schiele  
Caroline Schönfeld  
Susanne Stimmller  
Dr. Anna-Katharina v. Thaler  
Yvonne Theurer  
Stephanie Weber  
Doris Wieder



### Medical Doctoral Students

Annegret Abaza  
Grammato Amexi  
Gülsüm Baysal  
Aline Beyle  
Christian Bormann  
Barbara Brändle  
Steffen Brenner  
Karl Friedrich Ermisch  
Ellen Fehlert  
Anne Feseker

# ANNUAL REPORT

## DEPARTMENT OF NEURODEGENERATIVE DISEASES

Kathrin Fischerkeller  
Amina Flinsbach  
Hannah Glonneger  
Katharina Greulich  
Eva Grüner  
Jochen Hallwachs  
Madeleine Heim  
Manon Herfurth  
Carina Hemminger  
Katharina Hinger  
Malte Kampmeyer  
Barbara Kattner  
Sebastian Kleinhans  
Rosa Klotz  
Angela Kuhn  
Lena Kuhn  
Johannes Lang  
Martin Linzner  
Sinja Meyer  
Katharina Müller  
Suzanne Nathan  
Maxim Nechyporenko  
Theofanis Ngamsri  
Senait Ogbamicael  
Natalie Philipp  
Friedrich Pieper  
Deborah Prakash  
Benjamin Roeben  
Jens Rolinger  
Eva Schäffer  
David Schreibner  
Sonja Schürger  
Ellen Silberhorn  
Nike Spinnler  
Anne-Kathrin Stampf  
Raphaela Stocker  
Eva-Maria Strohmeier  
Margarete Walach  
Simon Weiss  
Richard Wüst

### Master Students

Katharina Stegen  
Stefanie Vollmer

### Diploma Students

Verena Malcherek  
Johannes Trambauer

## Neuropsychologists

Dr. Monika Fruhmann-Berger  
Dr. Susanne Gräber-Sultan  
Dr. Inga Liepelt-Scarfone

## CLINICAL STUDIES

Adagio Studie TVP1012/501 + Extension: TVP Multi-Center, open-label, follow-up study designed to evaluate the long-term effects of Rasagiline in Parkinson's disease subjects who participated the ADAGIO-study.

Investigators: I. Wurster, D. Berg

Trust (Transdermal Rotigotine User Surveillance Study): A naturalistic, multisite, observational study of Rotigotine Transdermal Patch and other currently prescribed therapies in patients with Idiopathic Parkinson's Disease.

Investigators: K. Sruljies, D. Berg

Settle-Extension 28850: Open Label Trial of Determine the Long-Term Safety of Safinamide in Parkinson's Disease Patients.

Investigators: I. Wurster, D. Berg

CAFQ056A2217 (AFQ-Extension): A multi-center, randomized, double-blind, placebo-controlled Phase-III-study to assess the efficacy of AFQ056 in reducing L-dopa induced dyskinesias.

Investigators: K. Brockmann, I. Wurster, D. Berg

Motion-Extension 27938: A phase III, double-blind, placebo-controlled randomized trial to determine the efficacy and safety of a low (50mg/day) and high (100mg/day) dose of safinamide, as add-on-therapy, in subjects with early idiopathic Parkinson's Disease treated with a stable dose of a single dopamine agonist.

Investigators: I. Wurster, D. Berg

Phytopharm – Cogane™ (PYM50028): Eine multizentrische Studie, randomisierte, doppelblinde, placebokontrollierte Phase-II-Parallelgruppenstudie zur Beurteilung der Wirksamkeit, Sicherheit und Verträglichkeit von CoganeTM (PYM50028), einem neuen, oral aktiven Induktor neurotropher Faktoren, bei männlichen und weiblichen Studienteilnehmern mit Morbus Parkinson im Frühstadium bei 28-wöchiger, einmal täglicher Verabreichung.

Investigators: K. Brockmann, I. Wurster, D. Berg

SP 1009 Aurora-Neupro® RLS Augmentation – Nicht interventionelle Studie

Investigator: D. Berg

AQW051A2209: A multi-center, randomized, double-blind, placebo-controlled, parallel-group, multiple oral dose study to assess the efficacy and tolerability of AQW051 in reducing L-dopa induced dyskinesias in Parkinson's patients with moderate to severe L-dopa induced dyskinesias.

Investigators: K. Sruljies, D. Berg



# ANNUAL REPORT

## DEPARTMENT OF NEURODEGENERATIVE DISEASES

PSP – Noscira: A Randomized, double-blind, placebo-controlled parallel-group-Study to evaluate the Safety, Tolerability and Efficacy of two different oral doses of NP03112, a GSK-Inhibitor, versus placebo in the Treatment of patients with mild to moderate progressive supranuclear palsy.

Investigators: K. Srulijes, W. Mätzler, D. Berg

BIA: Efficacy and safety of BIA 9-1067 in idiopathic Parkinson's disease patients with "wearing-off" phenomenon treated with levodopa plus a dopa carboxylase inhibitor (DDCI): a double-blind, randomized, placebo- and active-controlled, parallel-group, multicenter clinical study.

Investigators: D. Berg, K. Brockmann, K. Srulijes, I. Wurster

EarlyStim: The Effect of Deep Brain Stimulation of the Subthalamic Nucleus (STN-DBS) on Quality of Life in Comparison to Best Medical Treatment in Patients with Complicated Parkinson's Disease and Preserved Psychosocial Competence.

Investigators: G. Deuschl, R. Krüger

A Randomized, Double-Blind, Double-Dummy, Efficacy, Safety and Tolerability Study of Levodopa – Carbidopa Intestinal Gel in Levodopa-Responsive Parkinson's Subjects.

Investigator: R. Krüger

Open-Label, 12-Month Safety and Efficacy Study of Levodopa – Carbidopa Intestinal Gel in Levodopa-Responsive Parkinson's disease Subjects.

Investigator: R. Krüger

Combined stimulation of subthalamic nucleus and substantia nigra pars reticulata for the treatment of refractory gait disorders in Parkinson's disease.

Investigators: R. Krüger, D. Weiss

Global longterm registry of Levodopa-Carbidopa Intestinal Gel in Levodopa-Responsive Parkinson's disease Subjects.

Investigator: R. Krüger

Wirksamkeit und Sicherheit der Tiefen Hirnstimulation des Nucleus pedunculopontinus zur Behandlung von Parkinson-Patienten mit ausgeprägter Gangstörung.

Investigators: S. Breit, R. Krüger, A. Gharabaghi, C. Plewnia

Functional electrical stimulation in hereditary spastic paraparesis.

Investigators: R. Schüle, S. Wiethoff, K. Karle, L. Schöls

A phase III open-label, single-group extension study to obtain long-term safety and tolerability of idebenone in the treatment of Friedreich's ataxia patients (PROTI).

Investigators: J. Müller vom Hagen, L. Schöls

Randomized, double blind, placebo controlled study of Lu AA24493 in patients with Friedreich's ataxia to evaluate safety and tolerability and to explore efficacy (CEPO Phase IIa).

Investigators: T. Lindig, J. Müller vom Hagen, L. Schöls

A multi-center, randomized, double blind, placebo controlled, parallel group, multiple oral dose titration, proof of concept study in patients with Huntington's disease to assess the safety and tolerability of AFQo56 in reducing chorea.

Investigators: T. Lindig, J. Müller vom Hagen, L. Schöls

Tower Study: Prospective, open-label, non-randomized, single-arm, multi-center dose titration study to investigate the safety and efficacy of NT 201 in subjects deemed to require total body doses of 800 U of NT 201 during the course of the study for the treatment of upper and lower limb spasticity of the same body side due to cerebral causes. MRZ60201\_3053\_1.

Investigators: T. Wächter, K. Schweitzer

A phase III, randomised, double blind and open label phase, active and placebo controlled study comparing the short term efficacy of two formulations of clostridium botulinum type A toxin (Dysport and Dysport RU) to placebo, and assessing the short and long term efficacy and safety of Dysport RU following repeated treatments of subjects with cervical dystonia (CD). IPSEN N°Y-52-52120-134.

Investigators: T. Wächter, K. Brockmann

A phase III, multicentre, double blind, randomised, placebo-controlled, parallel-group study with an open-label extension of the safety and efficacy of Botox (Botulinum Toxin Type A) purified neurotoxin complex as treatment for post-stroke spasticity of the lower limb.

Investigators: T. Wächter, K. Schweitzer

Y-79-52120-166: An international observational prospective Study on long-term response to Botulinum toxin type A (BoNT-A) injections in subjects suffering from idiopathic cervical dystonia (CD) – pharmaco-economic impact (INTEREST IN CD2).

Investigators: T. Wächter

A94-52120-165: Eine nationale, multizentrische, nicht-interventionelle, prospektive, Längsschnittstudie zur Behandlung mit Botulinumtoxin A Injektionen in bisher nicht behandelten oder vorbehandelten Patienten mit zervikaler Dystonie (Dysport®).

Investigator: T. Wächter



## THIRD-PARTY FUNDING

### Ongoing Grants

#### Adagio Studie TVP1012/501 (Extension)

Project leader:	Prof. Dr. Daniela Berg
Funding institution:	TEVA
Funding period:	10/2009 – 12/2012
Awarded on:	October 31, 2011

#### TRUST – Beobachtungsstudie SP0948 (Transdermal Rotigotine User Surveillance Study)

Project leader:	Prof. Dr. Daniela Berg
Funding institution:	UCB
Funding period:	01/2010 – 12/2012
Awarded on:	July 14, 2010

# ANNUAL REPORT

## DEPARTMENT OF NEURODEGENERATIVE DISEASES

### Settle-Extension 28850 – Open Label Trial of Determine the Long-Term Safety of Safinamide in Parkinson's Disease Patients

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Merck Serono  
Funding period: 01/2011 – 01/2014  
Awarded on: August 02, 2010

### CAFQo5A2217 in dyskinetic Parkinson's disease patients (AFQ-Extension)

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Novartis  
Funding period: 12/2010 – 12/2014  
Awarded on: September 17, 2010

### Motion Extension 27938: A phase III, double-blind, placebo-controlled randomized trial to determine the efficacy and safety of a low (50mg/day) and high (100mg/day) dose of safinamide, as add-on-therapy, in subjects with early idiopathic Parkinson's Disease treated with a stable dose of a single dopamine agonist.

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Merck Serono  
Funding period: 02/2011 – 10/2012  
Awarded on: January 29, 2012

### PSP-Noscira – NPo3112 bei PSP

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Noscira  
Funding period: 12/2009 – 12/2012  
Awarded on: December 8, 2009

### Phytopharm – Cogane™ (PYM50028)

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Icon  
Funding period: 09/2010 – 12/2012  
Awarded on: May 18, 2011

### SP 1009 Aurora – Neupro® RLS Augmentation – multizentrische, nicht interventionelle Studie (NIS)

Project leader: Prof. Dr. Daniela Berg  
Funding institution: UCB  
Funding period: 07/2011 – 12/2013  
Awarded on: June 27, 2011

### AQWo51A2209

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Novartis  
Funding period: 07/2011 – 12/2012  
Awarded on: August 10, 2011

**MJFF Research Grant 2010: Longitudinal Follow Up of Clinical and Neuroimaging Signs as well as Biomarkers in Symptomatic and Asymptomatic LRRK2 Mutation Carriers in comparison to Idiopathic PD and Controls.**

Project leader: Prof. Dr. Daniela Berg, Prof. Dr. Thomas Gasser  
Funding institution: Michael J. Fox Foundation for Parkinson's Research  
Funding period: 06/2011 – 06/2013  
Awarded on: January 24, 2011

**dPV Fellowship Projekt 2011/2012**

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Deutsche Parkinson Vereinigung (dPV)  
Funding period: 07/2011 – 06/12  
Awarded on: July 5, 2011

**Progression markers in the suspected premotor phase and early Parkinson's disease, 2<sup>nd</sup> Amendment**

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Johnson & Johnson  
Funding period: 12/08 – 12/12  
Awarded on: December 5, 2008 (Amendment: July 4, 2011)

**Biomarker Pilot Study**

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Boehringer Ingelheim  
Funding period: 10/2011 – 03/2012  
Awarded on: September 13, 2011



**Q-Motor-Projekt**

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Novartis  
Funding period: 11/2011 – 03/2012  
Awarded on: November 07, 2011

**Pool-Projekt 2010-18: Autonomic end organ responses and disease-associated genetic profile in subjects with and without increased risk for Alzheimer's and Parkinson's disease.**

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Werner Reichardt Centre for Integrative Neuroscience (CIN)  
Funding period: 10/2011 – 09/2012  
Awarded on: May 13, 2011

**Pool-Projekt 2010-19: Magnetic resonance spectroscopic imaging; MRSI; substantia nigra; Parkinson's disease**

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Werner Reichardt Centre for Integrative Neuroscience (CIN)  
Funding period: 07/2011 – 06/2012  
Awarded on: May 13, 2011

# ANNUAL REPORT

## DEPARTMENT OF NEURODEGENERATIVE DISEASES

### Prämotor Studie: Prospektive Kohortenstudie zur Bestimmung von Prämotor- und Risikofaktoren bei Morbus Parkinson

Project leader: Prof. Dr. Daniela Berg  
Funding institution: TEVA  
Funding period: 01/2012 – 12/2012  
Awarded on: December 29, 2011

### MARK-MD, IAPP

Project leader: Prof. Dr. Daniela Berg  
Funding institution: EU  
Funding period: 03/2010 – 03/2012  
Awarded on: November 20, 2009

### PPMI – The Parkinson's Progression Markers Initiative

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Michael J. Fox Foundation for Parkinson's Research  
Funding period: 03/2010 – 03/2015  
Awarded on: March 23, 2010

### PPMI – The Parkinson's Progression Markers Initiative – 4<sup>th</sup> Amendment

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Michael J. Fox Foundation for Parkinson's Research  
Funding period: 01/2012 – 12/2013  
Awarded on: September 22, 2011

### DEMPARK – Parkinsonkrankheit und Demenz: longitudinale Studie

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Philipps-University, Marburg  
Funding period: 01/10 – 12/12  
Awarded on: January 2010

### Funktionelle Charakterisierung der Kinase LRRK2 (Bl 1210/4-1)

Project leader: Dr. Dr. Saskia Biskup  
Funding institution: Deutsche Forschungsgemeinschaft (DFG)  
Funding period: 07/2009 – 07/2012

### LRRK2 an der Schnittstelle von Apoptose und Proliferation

Project leader: Dr. Dr. Saskia Biskup  
Funding institution: Thyssen  
Funding period: 09/2010 – 09/2012

### **Development of LRRK2 BAC transgenic rats**

Project leader: Dr. Dr. Saskia Biskup and Prof. Dr. Olaf Riess  
Funding institution: European Project on Mendelian Forms of Parkinson's Disease (MeFoPa)  
Funding period: 04/2010 – 04/2013

### **Macrophage Precursors as biomarker für LRRK2-associated disease**

Project leader: Dr. Dr. Saskia Biskup and Prof. Dr. Thomas Gasser  
Funding institution: Michael J. Fox Foundation for Parkinson's Research  
Funding period: 11/2010 – 11/2012

### **Scientific Administrative Office, subproject 1, "Genomics of Parkinson's Disease", Parkinson Network, National Genome research Network (NGFN-Plus)**

Project leader: Prof. Dr. Thomas Gasser  
Funding institution: Federal Ministry of Education and Research (BMBF)  
Funding period: 06/2011 – 05/2013  
Awarded on: May 20, 2011

### **Genomics of Parkinson's Disease, subproject 2, Parkinson Network, National Genome research Network (NGFN-Plus)**

Project leader: Prof. Dr. Thomas Gasser  
Funding institution: Federal Ministry of Education and Research (BMBF)  
Funding period: 06/2011 – 05/2013  
Awarded on: May 20, 2011



### **Clinic and genetics of Parkinson's disease: Helmholtz alliance for mental health in an ageing society (HelMA)**

Project leader: Prof. Dr. Thomas Gasser  
Funding institution: Helmholtz Association  
Funding period: 07/08 – 06/12  
Awarded on: May 05, 2008

### **Identification of genes causing familial forms of Parkinson's disease: ERA-Net NEURON**

Project leader: Prof. Dr. Thomas Gasser  
Funding institution: Federal Ministry of Education and Research (BMBF)  
Funding period: 03/09 – 08/12  
Awarded on: April 07, 2009

### **MeFoPa-Registry and -Biobank: Mendelian Forms of Parkinson's disease**

Project leader: Prof. Dr. Thomas Gasser  
Funding institution: EU  
Funding period: 04/10 – 03/13  
Awarded on: March 22, 2010

# ANNUAL REPORT

## DEPARTMENT OF NEURODEGENERATIVE DISEASES

### Die Bedeutung von DJ-1 bei der Regulation mitochondrialer Dynamik und Autophagie in murinen und humanen neuronalen Modellen der Parkinson Krankheit

Project leader: Prof. Dr. Rejko Krüger, Prof. Dr. Thomas Gasser  
Funding institution: Deutsche Forschungsgemeinschaft (DFG)  
Funding period: 05/2012 – 04/2015  
Awarded on: September 9, 2011

### Functional Genomics of Parkinson's Disease

Project leader: Prof. Dr. Philipp Kahle  
Funding institution: Federal Ministry of Education and Research (BMBF)  
Funding period: 06/2008 – 05/2013

### Helmholtz Alliance for Mental Health in an Aging Society

Project leader: Prof. Dr. Philipp Kahle  
Funding institution: Helmholtz Association  
Funding period: 07/2008 – 06/2012

### NEURASYN Academic-Industrial Training Network on $\alpha$ -Synuclein-related Brain Diseases

Project leader: Prof. Dr. Philipp Kahle  
Funding institution: EU FP7  
Funding period: 11/2009 – 10/2013

### Mendelian Forms of Parkinsonism (MeFoPa)

Project leader: Prof. Dr. Philipp Kahle (coordinator, recessive PARK genes)  
Funding institution: EU FP7  
Funding period: 04/2010 – 03/2013

### Novel Target Genes of TDP-43

Project leader: Prof. Dr. Philipp Kahle  
Funding institution: Deutsche Forschungsgemeinschaft (DFG)  
Funding period: 04/2010 – 03/2013

### Competence Net Degenerative Dementias – Frontotemporal Dementias

Project leader: Prof. Dr. Philipp Kahle (Project Coordinator)  
Funding institution: Federal Ministry of Education and Research (BMBF)  
Funding period: 02/2011 – 01/2014

### Virtual Institute „RNA Dysfunction in ALS and FTD“ (startup funding)

Project leader: Prof. Dr. Philipp Kahle  
Funding institution: German Center for Neurodegenerative Diseases (DZNE)  
Funding period: 12/2011 – 08/2012

### **Identification of early biomarkers of Parkinson's Disease**

Project leader: Prof. Dr. Rejko Krüger  
Funding institution: Boehringer-Ingelheim  
Funding period: 09/2011 – 08/2012

### **Characterization of mitochondrial dynamics**

Project leader: Prof. Dr. Rejko Krüger  
Funding institution: Boehringer-Ingelheim  
Funding period: 09/2011 – 08/2012

### **Wirksamkeit und Sicherheit der Tiefen Hirnstimulation des Nucleus pedunculopontinus zur Behandlung von Parkinson-Patienten mit ausgeprägter Gangstörung**

Project leader: Prof. Dr. Rejko Krüger, Dr. Sorin Breit, Dr. Alireza Gharabaghi,  
Apl. Prof. Dr. Christian Plewnia  
Funding institution: Faculty of Medicine (AKF), University of Tübingen  
Funding period: 12/2009 – 06/2012

### **Polyglutamine repeats and Parkinson disease**

Project leader: Prof. Dr. Rejko Krüger, M. Sharma, Prof. Dr. Thomas Gasser  
Funding institution: Michael J. Fox Foundation for Parkinson's Research  
Funding period: 03/2012 – 02/2013



### **Funktionelle Charakterisierung der Bedeutung von Mutationen im Omi/HtrA2-Gen im Rahmen gestörter mitochondrialer Funktion und Dynamik bei der Parkinson-Krankheit**

Project leader: Prof. Dr. Rejko Krüger  
Funding institution: Deutsche Forschungsgemeinschaft (DFG; KR2119/3-2)  
Funding period: 08/2000 – 08/2013

### **Mitochondrial stress response in neurodegeneration and aging – dissection of Omi/HtrA2 and DJ-1 mediated signaling pathways**

Project leader: Prof. Dr. Rejko Krüger  
Funding institution: Federal Ministry of Education and Research (BMBF)  
(NGFNplus Verlängerung Bund o1GS0468)  
Funding period: 06/2011 – 05/2013

### **Die Bedeutung des Parkinson-assoziierten Proteins Mortalin im Rahmen mitochondrialer Signalwege der Neurodegeneration**

Project leader: Prof. Dr. Rejko Krüger  
Funding institution: Fritz-Thyssen-Stiftung (AZ: 10.11.2.153)  
Funding period: 08/2011 – 07/2013

# ANNUAL REPORT

## DEPARTMENT OF NEURODEGENERATIVE DISEASES

### Die Bedeutung von Dj-1 bei der Regulation mitochondrialer Dynamik und Autophagie in murinen und humanen neuronalen Modellen der Parkinson-Krankheit

Project leader: Prof. Dr. Rejko Krüger, Prof. Dr. Thomas Gasser  
Funding institution: Deutsche Forschungsgemeinschaft (DFG)  
Funding period: 08/2011 – 07/2014

### Combined stimulation of subthalamic nucleus and substantia nigra pars reticulata for the treatment of refractory gait disorders in Parkinson's disease: design of a two-armed double-blind cross-over study

Project leader: Dr. Daniel Weiss  
Funding institution: Medtronic  
Funding period: 06/2011 – 06/2012

### Neuronale Integration von Koordination der unteren Extremität bei Parkinson-Patienten mit tiefer Hirnstimulation

Project leader: Dr. Daniel Weiss  
Funding institution: Faculty of Medicine (AKF-259-o-o), University of Tübingen  
Funding period: 04/2011 – 03/2012

### The neuromuscular network of freezing of gait in Parkinson's disease

Project leader: Prof. Dr. Rejko Krüger  
Funding institution: St. Jude Medical  
Funding period: 12/2012 – 11/2013

### Wirksamkeit und Sicherheit der Tiefen Hirnstimulation des Nucleus pedunculopontinus zur Behandlung von Parkinson-Patienten mit ausgeprägter Gangstörung

Project leader: Dr. Sorin Breit, Prof. Dr. Rejko Krüger,  
Prof. Dr. A. Gharabaghi, Prof. Dr. C. Plewnia  
Funding institution: Faculty of Medicine (AKF)  
Funding period: 01/2011 – 12/2012

### Wirksamkeit und Sicherheit der Tiefen Hirnstimulation des Nucleus pedunculopontinus zur Behandlung von Parkinson-Patienten mit ausgeprägter Gangstörung

Project leader: Dr. Sorin Breit, Prof. Dr. A. Gharabaghi  
Funding institution: Medtronic  
Funding period: 07/2009 – 06/2012

### Ambulanz für Bewegungsstörungen: Lebensqualität bei Behandlung mit Botulinumtoxin

Project leader: Dr. Tobias Wächter  
Funding institution: Merz Pharmaceuticals  
Funding period: 10/2011 – 09/2012

### **Quality of life in patients treated with Botulinumtoxin**

Project leader: Dr. Tobias Wächter  
Funding institution: Merz Pharmaceuticals  
Funding period: 07/2011 – 06/2012  
Awarded on: August 24, 2011

### **Retrospective comparison of Botuliumtoxitreatment in patients with cervical dystonia**

Project leader: Dr. Tobias Wächter  
Funding institution: Pharm Allergan  
Funding period: 11/2011 – 06/2012  
Awarded on: November 17, 2011

### **Datenerhebung bei zervikaler Dystonie**

Project leader: Dr. Tobias Wächter  
Funding institution: Pharm Allergan  
Funding period: 11/2011 – 05/2012

### **LEUKONET: Phenotypic variability, natural history and progression markers of late-onset leukodystrophies**

Project leader: Prof. Dr. Ludger Schöls  
Funding institution: Federal Ministry of Education and Research (BMBF)  
Funding period: 01/2009 – 04/2012  
Awarded on: February 3, 2009



### **mitoNET: Fission and fusion in mitochondrial diseases**

Project leader: Prof. Dr. Ludger Schöls / Prof. Dr. Doron Rapaport  
Funding institution: Federal Ministry of Education and Research (BMBF)  
Funding period: 01/2009 – 01/2015  
Awarded on: May 14, 2012

### **RISCA: Prospective study of individuals at risk for spinocerebellar ataxias type 1, 2, 3 and 6**

Project leader: Prof. Dr. Ludger Schöls  
Funding institution: EU  
Funding period: 05/2008 – 04/2012  
Awarded on: April 25, 2008

### **EUROSPA: European network on spastic paraplegias**

Project leader: Prof. Dr. Ludger Schöls, PD Dr. Peter Bauer  
Funding institution: EU  
Funding period: 06/2008 – 03/2012  
Awarded on: June 13, 2008

# ANNUAL REPORT

## DEPARTMENT OF NEURODEGENERATIVE DISEASES

### Genetic disorders in Arab societies of Israel and the Palestinian Authorities

Project leader: Prof. Dr. Ludger Schöls  
Funding institution: Deutsche Forschungsgemeinschaft (DFG 754/5-1)  
Funding period: 05/2011 – 04/2013  
Awarded on: February 14, 2011

### Genetische Grundlagen der Hereditären Spastischen Spinalparalysen

Project leader: Dr. Rebecca Schüle, Prof. Dr. Ludger Schöls  
Funding institution: HSP-Selbsthilfegruppe Deutschland e.V.  
Funding period: 04/2011 – 03/2013  
Awarded on: February 28, 2011

### Nosology and molecular diagnosis of the degenerative recessive ataxias (EUROSCAR)

Project leader: Prof. Dr. Ludger Schöls, PD Dr. Peter Bauer  
Funding institution: EU  
Funding period: 05/2012 – 04/2015  
Awarded on: December 5, 2011

### New Grants

#### AQW051A2209 – 1<sup>st</sup> Amendment

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Novartis  
Funding period: 07/2011-12/2012  
Awarded on: July 5, 2012

#### AQW051A2209 – 2<sup>nd</sup> Amendment

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Novartis  
Funding period: 10/2012 – 09/2013  
Awarded on: September 24, 2012

#### BIA – 91067-301 - Amendment

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Scope International  
Funding period: 04/2012 – 04/2013  
Awarded on: March 12, 2012

### Landscape

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Philipps-University, Marburg  
Funding period: 04/2011 – 03/2014  
Awarded on: February 16, 2012

## NIC-PD

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Philipps-University Marburg  
Funding period: 01/2012 – 12/2017  
Awarded on: February 23, 2012

## DAT-Imaging in LRRK2 Gene Carriers

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Institute of Neurodegenerative Disorders, New Haven  
Funding period: 01/2012 – 01/2013  
Awarded on: March 23, 2012

## MJFF Research Grant 2012 “LRRK2 Mutations and Cancer Risk

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Michael J. Fox Foundation for Parkinson’s Research  
Funding period: 06/2012 – 05/2014  
Awarded on: May 2, 2012

## Inclusion of Resting State MRI: A Parkinson’s Progression Markers Initiative (PPMI) Substudy

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Michael J. Fox Foundation for Parkinson’s Research  
Funding period: 07/2012 – 12/2016  
Awarded on: July 3, 2012



## PPMI Amendment: Cognitive Categorization Assessment

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Michael J. Fox Foundation for Parkinson’s Research  
Funding period: 07/12 – 12/16  
Awarded on: July 3, 2012

## PPMI Amendment Additional PD Subjects

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Michael J. Fox Foundation for Parkinson’s Research  
Funding period: 07/2012 – 12/2016  
Awarded on: July 19, 2012

## PPMI – Data Entry Award (second quarter 2012)

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Michael J. Fox Foundation for Parkinson’s Research  
Funding period: 03/2012 – 06/2012  
Awarded on: July 16, 2012

# ANNUAL REPORT

## DEPARTMENT OF NEURODEGENERATIVE DISEASES

### PPMI – Data Entry Award (third quarter 2012)

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Michael J. Fox Foundation for Parkinson's Research  
Funding period: 07/2012 – 09/2012  
Awarded on: December 5, 2012

### MJFF Research Grant 2011: Gait and Motor Symptoms in healthy asymptomatic relatives of Patients with PD carriers of Mutations in the LRRK2 gene

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Michael J. Fox Foundation for Parkinson's Research  
Funding period: 09/2012 – 08/2014  
Awarded on: September 26, 2012

### Progression Markers in the suspected premotor phase and early Parkinson's Disease – Amendment 3

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Johnson & Johnson  
Funding period: 10/2012 – 12/2014  
Awarded on: October 30, 2012

### dPV Fellowship Projekt 2012/2013

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Deutsche Parkinson Vereinigung (dPV)  
Funding period: 07/2012 – 06/2013  
Awarded on: September 13, 2012

### MDS-UPDRS

Project leader: Prof. Dr. Daniela Berg  
Funding institution: Philipps-University, Marburg  
Funding period: 06/2011 – 12/2012  
Awarded on: November 22, 2012

### OPTIMED

Project leader: Prof. Daniela Berg  
Funding institution: BMWi  
Funding period: 11/2012 – 10/2014  
Awarded on: June 26, 2012

### LRRK2: Protein interaction network analysis and pathway modeling for LRRK2

Project leader: Prof. Dr. Thomas Gasser  
Funding institution: Michael J. Fox Foundation for Parkinson's Research  
Funding period: 06/2012 – 05/2015  
Awarded: March 26, 2012

### **Virtual Institute: RNA Dysmetabolism in ALS and FTD (VH-VI-510)**

Project leader: Prof. Dr. Philipp Kahle  
Funding institution: German Center for Neurodegenerative Diseases (DZNE)  
Funding period: 10/2012 – 09/2017  
Awarded on: September 14, 2012

### **Integrated european omics research project for diagnosis and therapy in rare neuromuscular and neurodegenerative diseases**

Project leader: Prof. Dr. Ludger Schöls  
Funding institution: EU FP7 grant 305121  
Funding period: 10/2012 – 09/2017  
Awarded on: September 2012

### **27-Hydroxy-Sterol-Toxizität in der Pathophysiologie der SPG5**

Project leader: Prof. Dr. Ludger Schöls  
Funding institution: HSP-Selbsthilfegruppe Deutschland e.V.  
Funding period: 04/2012 – 03/2013  
Awarded on: March 27, 2012

### **SENSE-PARK: Supporting and Empowering Parkinson patients in their home environment using a novel sensory information system that monitors daily-life-relevant parameters of Parkinson disease and their change.**

Project leader: PD Dr. Walter Maetzler  
Funding institution: EU FP7  
Funding period: 11/2011 – 10/2014



### **Moving beyond**

Project leader: PD Dr. Walter Maetzler  
Funding institution: EU FP7  
Funding period: 10/2012 – 09/2016

### **Development of a screening tool for the treatment of chronic migraine with Botulinumtoxin**

Project leader: Dr. Tobias Wächter  
Funding institution: Pharm Allergan  
Funding period: 12/2012 – 12/2013  
Awarded on: December 13, 2012

## **AWARDS**

### **Dr. Matthias Synofzik**

Heredo-Ataxie-Preis 2012 der Deutschen Heredo-Ataxie-Gesellschaft (DHAG)

# ANNUAL REPORT

## DEPARTMENT OF NEURODEGENERATIVE DISEASES

### PHD THESES (COMPLETED IN 2012)

Applicant: Heinrich Schell

**Characterization and behavioral consequences of  $\alpha$ -synucleinopathy in transgenic mice**

Supervisor: Prof. Dr. Philipp Kahle

Faculty: Department of Biology, Faculty of Science,  
University of Tübingen

Applicant: Petra Füger

**The Drosophila neuromuscular junction as a model system to study the molecular mechanisms of neurodevelopment and synaptic degeneration**

Supervisor: Prof. Dr. Ludger Schöls

Faculty: Faculty of Medicine, Faculty of Sciences,  
University of Tübingen

### MEDICAL THESES (COMPLETED IN 2012)

Applicant: Sarah Bauer

**Association between clinical aspects and electronystagmography in different subtypes of progressive supranuclear palsy.**

Supervisor: Prof. Dr. Daniela Berg

Applicant: Dorothea Baumann

**Korrelation bildgebender Befunde und präklinischer Marker bei Morbus Parkinson**

Supervisor: Prof. Dr. Daniela Berg

Applicant: Marianna Bentele

**Charakterisierung von Gruppen mit unterschiedlicher Substantia nigra Echogenität in der Transkraniellen Sonographie**

Supervisor: Prof. Dr. Daniela Berg

Applicant: Elisabeth Dietzel

**Structural differences between two subtypes of progressive supranuclear palsy in the MRI:**

**A voxel-based morphometric study with association to clinical aspects**

Supervisor: Prof. Dr. Daniela Berg

Applicant: Katharina Knauel

**Insulin-like growth factor 1 als Biomarker für Morbus Parkinson**

Supervisor: Prof. Dr. Daniela Berg

Applicant: Caroline Merten

**Evaluation motorischer sowie nicht-motorischer Symptome bei Parkinson Patienten mit heterozygoter GBA-Mutation im Vergleich zu Patienten mit idiopathischem Parkinson Syndrom**

Supervisor: Prof. Dr. Daniela Berg

- Applicant: Andreas Meyer  
**Echogenitätsveränderungen der Basalganglien in der transkranialen Sonographie bei Patienten mit zervikalen Bandscheibenvorfällen**  
 Supervisor: Prof. Dr. Daniela Berg
- Applicant: Caroline Urban  
**Bewegungsanalytische Untersuchung von Probanden mit unterschiedlicher Echogenität der Substantia nigra im transkranialen Ultraschall – ein Gruppenvergleich**  
 Supervisor: Prof. Dr. Daniela Berg
- Applicant: Dr. Vera Katharina Siegert  
**Störungen des axonalen Transports bei der hereditären spastischen Spinalparalyse im Drosophila-Modell**  
 Supervisor: Prof. Dr. Ludger Schöls
- Applicant: Marie Karam  
**Quantitative autonome Parameter beim Idiopathischen Parkinsonsyndrom: Potential für Verlaufsdarstellung**  
 Supervisor: PD Dr. Walter Maetzler
- Applicant: Johannes Georg Stirnkorb  
**Amyloid-beta-assoziierte Stoffwechselwege und kognitive Einschränkungen bei Lewy-Körper-Erkrankungen: Ein genetisch-klinisch-biochemischer Ansatz**  
 Supervisor: PD Dr. Walter Maetzler
- Applicant: Sinja Irina Meyer  
**Gleichgewichtsverhalten bei Risikopatienten für die Parkinson-Erkrankung**  
 Supervisor: PD Dr. Walter Maetzler



## DIPLOMA/MASTERS THESES (COMPLETED IN 2012)

- Applicant: Stephanie Baur  
**Transthyretin als Biomarker für Lewy-Körper Erkrankungen: Eine Fall-Kontroll-Studie mit Gensequenzierung und Proteinmessung in Liquor und Serum**  
 Supervisor: Prof. Dr. Daniela Berg

- Applicant: Johannes Trambauer  
**Expression and Purification of ASK1 and the PD-linked protein DJ-1**  
 Supervisor: Prof. Dr. Philipp Kahle  
 Faculty: Interfaculty Institute for Biochemistry,  
 University of Tübingen

- Applicant: Stefanie Vollmer  
**Regulation of Parkin Ubiquitin Ligase Activity by E2 Co-enzymes**  
 Supervisor: Prof. Dr. Philipp Kahle  
 Faculty: Biomedical Engineering,  
 University of Albstadt-Sigmaringen

# ANNUAL REPORT

## DEPARTMENT OF NEURODEGENERATIVE DISEASES

### CONFERENCES

#### **Workshop “Transcranial Sonography (TCS) in Parkinsonian Syndromes”, 2012**

University Hospital Tübingen, Neurology, 24.-25.09.2012

Scientific Coordinator: Prof. D. Berg

#### **Tübinger Therapiefortbildung Neurologie**

University Hospital Tübingen, Neurology, 12.05.2012

Scientific Coordinator: Prof. D. Berg

#### **Süddeutsches Stimulatortreffen**

Odelzhausen, 14.-15.04.2012

Scientific Coordinators: Dr. T. Wächter, Prof. R. Krüger

#### **Parkinson-Infotag**

Tübingen, 02.10.2012

Scientific Coordinator: Prof. R. Krüger

#### **Qualitätszirkel Parkinson Württemberg**

Stuttgart, 19.11.2012

Scientific Coordinator: Prof. R. Krüger, Dr. Herbst

#### **Süddeutsches Stimulatortreffen**

Odelzhausen, 27.-28.04.2012

Scientific Coordinators: Dr. T. Wächter

#### **Tübinger Summer School für Junge Neurologen**

Tübingen, 30.7.-03.8.2012

Scientific Coordinators: Dr. T. Wächter, Prof. H. Lerche

#### **Expertentreffen zu Dystonie und Botulinumtoxintherapie**

Tübingen, 14.03.2012

Scientific Coordinator: Dr. T. Wächter

#### **Expertentreffen zu Dystonie und Botulinumtoxintherapie**

Tübingen, 09.10.2012

Scientific Coordinator: Dr. T. Wächter

#### **Hand-on-training Botox for chronic Migraine**

Tübingen, 16.07.2012

Scientific Coordinator: Dr. T. Wächter

### **Hand-on-training Botox for chronic Migraine**

Tübingen, 29.11.2012

Scientific Coordinator: Dr. T. Wächter

### **Genetic Disorders in Arab Societies of Israel and the Palestinian Authorities**

Jerusalem, Israel, 29.01.-01.02.2012

Scientific Coordinator: Prof. L. Schöls

## **STUDENT TRAINING**

### **Lectures (Summer Term/Winter Term)**

#### **Introduction to Clinical Neurology (Summer Term/Winter Term)**

Faculty: Medical School

Coordinators: Prof. D. Berg, PD F. Bischof

#### **Neurologische Untersuchung für Fortgeschrittene**

Faculty: Faculty of Medicine, University of Tübingen

Coordinators: Prof. T. Gasser, PD W. Maetzler, Prof. R. Krüger, Prof. L. Schöls

#### **Einführung in die klinische Medizin (Neurologie)**

Faculty: Medical Faculty

Coordinators: Prof. T. Gasser, PD F. Bischof, Prof. A. Melms

#### **Genetic and Molecular Basis of Neural Diseases I**

Faculty: Faculty of Medicine, University of Tübingen

Coordinators: Prof. T. Gasser, Prof. M. Jucker, Prof. L. Schöls, Prof. F. Baumann



#### **Geriatrisch-neurologische-psychiatrische Fallkonferenz**

Faculty: Faculty of Medicine, University of Tübingen

Coordinators: PD W. Maetzler, Appl. Prof. T. Leyhe, Prof. T. Gasser, Dr. T. Wächter

#### **Vorlesung Grundlagen der Neurologie**

Faculty: Faculty of Medicine, University of Tübingen

Coordinators: Prof. T. Gasser, Prof. A. Melms

#### **Modul Neurobiologie**

Faculty: Faculty of Medicine, University of Tübingen

Coordinators: Prof. T. Gasser, Prof. H. Lerche, Dr. S. Maljevic, Prof. A. Melms,  
Dr. U. Naumann, Prof. B. Wissinger

#### **Neurochemistry and Neurotransmitters (full winter term)**

Faculty: Graduate School of Cellular and Molecular Neurosciences

Coordinator: Prof. P. Kahle, Lecturer

# ANNUAL REPORT

## DEPARTMENT OF NEURODEGENERATIVE DISEASES

### Biochemistry II (1 wk Block Hormones)

Faculty: Faculty of Medicine, University of Tübingen  
Coordinator: Prof. P. Kahle, Lecturer

### Neurobiochemistry (Ring Lecture)

Faculty: Molecular Medicine  
Coordinator: Prof. P. Kahle, Lecturer

### Genetic and Molecular Basis of Neural Diseases

Faculty: Graduate School of Cellular and Molecular Neuroscience  
Coordinator: Prof. M. Jucker

### Parkinson für Pharmazeuten

Faculty: Faculty of Pharmacology, University of Tübingen  
Coordinator: Prof. P. Ruth

### Neurogenetic Disorders

Faculty: Summer School of Young Neurologists  
Coordinator: Prof. H. Lerche

### Seminars and Courses

#### Neurology Seminar and Bedside Teaching (Summer Term/Winter Term)

Host: Medical School  
Coordinators: Prof. D. Berg, PD F. Bischof, Prof. T. Haarmeier, Prof. R. Krüger,  
Prof. L. Schöls, PD Y. Weber and staff of the Departments of  
General Neurology and Neurodegenerative Diseases

#### TÜKLiS "Treatment of Neurological Disorders" (Summer Term/Winter Term)

Host: Medical School  
Coordinators: Prof. D. Berg, PD Bischof, Prof. T. Haarmeier, Prof. R. Krüger,  
Prof. A. Melms, Prof. L. Schöls, PD Y. Weber, Prof. T. Gasser,  
Prof. H. Lerche, Prof. H.-O. Karnath

#### Bedside teaching in the final year of medical studies (Summer Term/Winter Term)

Host: Medical School  
Coordinators: Prof. D. Berg, PD Bischof, Prof. T. Haarmeier, Prof. R. Krüger,  
Prof. A. Melms, Prof. L. Schöls, PD Y. Weber, Prof. T. Gasser,  
Prof. H. Lerche, Prof. H.-O. Karnath

#### Neurobiologisches Montagskolloquium (Summer Term/Winter Term)

Host: Medical School  
Coordinators: Prof. D. Berg, PD Bischof, Prof. T. Haarmeier, Prof. R. Krüger,  
Prof. A. Melms, Prof. L. Schöls, PD Y. Weber, Prof. T. Gasser,  
Prof. H. Lerche, Prof. H.-O. Karnath

#### Neurologischer Untersuchungskurs

Coordinators: Prof. T. Gasser, Prof. A. Melms, Prof. H. Lerche , Prof. U. Ziemann

### **Neurologische Untersuchung für Fortgeschrittene**

Coordinators: Prof. T. Gasser, Prof. R. Krüger, PD W. Maetzler, Prof. L. Schöls

### **Geriatrisch-neurologisch-psychiatrische Fallkonferenz**

Coordinators: Prof. D. Berg, Prof. G. Eschweiler, Prof. T. Gasser, Prof. T. Leyhe,  
PD Dr. W. Maetzler, Dr. T. Wächter

### **Wissenschaftliches Kolloquium**

Coordinators: Prof. T. Gasser, Prof. A. Melms, Prof. H. Lerche, Prof. P. Thier,  
Prof. M. Jucker, Prof. R. Krüger, Prof. U. Ziemann

### **Pathologische oszillatorische Aktivität bei Bewegungsstörungen: Pathophysiologische**

#### **Konzepte und klinische Implikationen**

Host: Prof. L. Timmermann  
Coordinator: Prof. R. Krüger

### **Behandlung der Carotisstenosen: operativ versus endovaskulär**

Host: Prof. T. Haarmeier  
Coordinator: Prof. R. Krüger

### **Die klinische Variabilität der Glucose-Transporter-Typ-1-Syndrome**

Host: PD Dr. Y. Weber  
Coordinator: Prof. R. Krüger



### **Frühdiagnostik Neurodegenerativer Erkrankungen**

Host: Prof. D. Berg  
Coordinator: Prof. R. Krüger

### **Neuropsychologische Aspekte von Stress und Lampenfieber**

Host: PD Dr. W. Maetzler  
Coordinator: Prof. R. Krüger

### **Translational Implications of alpha-Synuclein Research**

Host: Prof. D. Di Monte  
Coordinator: Prof. R. Krüger

### **Neues zu den muskulären Kanalopathien**

Host: Prof. F. Lehmann-Horn  
Coordinator: Prof. R. Krüger

### **Vorhoehverschluss – Alternative zur Antikoagulation?**

Host: May  
Coordinator: Prof. R. Krüger

### **Functional Imaging in the Epilepsies**

Host: Prof. M. Richardson  
Coordinator: Prof. R. Krüger

# ANNUAL REPORT

## DEPARTMENT OF NEURODEGENERATIVE DISEASES

### Fallbericht Station 43

Host: Dr. K. Brockmann  
Coordinator: Prof. R. Krüger

### Using Drosophila to Study Mechanisms of Axonal Regeneration and Degeneration

#### After Injury

Host: Dr. C. Collins  
Coordinator: Prof. R. Krüger

### Spatial Attention and Parietal Subregions: Lesion Mapping and fMRI Converge

Host: Prof. Vandenberghe  
Coordinator: Prof. R. Krüger

### Hirntod-Diagnostik

Host: Dr. M. Dihné  
Coordinator: Prof. R. Krüger

### EEG-Seminar

Host: PD Dr. Y. Weber  
Coordinator: Prof. R. Krüger

### Epidemiology of neurodegenerative diseases: Lessons from the past and plans for the future

Host: Prof. M. Breteler  
Coordinator: Prof. R. Krüger

### The Potential of Induced Pluripotent StemCells in Development and Regenerative Medicine

Host: Prof. H. R. Schöler  
Coordinator: Prof. R. Krüger

### Reward Representation and Rule-based Cognitive Decisions in Auditory Cortex

Host: Prof. H. Scheich  
Coordinator: Prof. R. Krüger

### Mechanisms of Axonal De- and Regeneration in the CNS

Host: Dr. P. Ligor  
Coordinator: Prof. R. Krüger

### Epileptic Seizures in the MNRI: Haemodynamic Mapping of Ictal Networks

Host: Prof. J. Lemieux  
Coordinator: Prof. R. Krüger

### Lipid Metabolism and Neurodegeneration

Host: Prof. I Björkhem  
Coordinator: Prof. R. Krüger

### Stem Cell-derived In Vitro Neuronal Network Activity

Host: Dr. M. Dihné  
Coordinator: Prof. R. Krüger

### **Seminar: Neurologie**

Faculty: Faculty of Medicine, University of Tübingen  
Coordinator: PD. Dr. F. Bischof

### **Therapieseminar: Genetische Diagnostik**

Faculty: University Department of Neurology, Tübingen  
Coordinator: Prof. R. Krüger

### **Bedside Teaching: Neurologische Untersuchung für Fortgeschrittene**

Faculty: Faculty of Medicine, University of Tübingen  
Coordinator: Prof. L. Schöls

## **LAB ROTATIONS**

*Summer Term 2012*

Philipp Bauknecht  
**Internship**  
Coordinator: Prof. Dr. Thomas Gasser

Mai Atef  
**Internship**  
Coordinator: Prof. Dr. Thomas Gasser

*Winter Term 2011/2012*

**Analysis of genes FBXO7 and GBA as possible causatives of early onset Parkinson's Disease**  
Coordinators: Prof. Dr. Thomas Gasser, Prof. Dr. Mathias Jucker, Dr. Ingrid Ehrlich

Julia Westermeier  
**Master Thesis (by 05/2012)**  
Coordinator: Prof. Dr. Rejko Krüger



## **GUEST RESEARCHERS**

**Dr. Rita de Cassia Leite Fernandes, Brazil**  
Supervisor: Prof. D. Berg

**Dr. Rajka Liscic, Croatia**  
Supervisor: Prof. D. Berg

**Dr. Solveig Hlin Kristjansdottir, Iceland**  
Supervisor: Prof. D. Berg

**Dr. Heimir Snorrason, Iceland**  
Supervisor: Prof. D. Berg

# ANNUAL REPORT

## DEPARTMENT OF COGNITIVE NEUROLOGY

### CLINICAL AND SCIENTIFIC STAFF

#### Head of the Department

Prof. Dr. Peter Thier

#### Group leaders/Attending physicians

Prof. Dr. Martin Giese  
Dr. Marc Himmelbach  
Prof. Dr. Uwe Ilg  
Prof. Dr. Dr. Hans-Otto Karnath  
Prof. Dr. Cornelius Schwarz  
PD Dr. Fahad Sultan

#### Scientists/Residents

Dr. Daniela Balslev  
Dr. Marissa Barabas  
Dr. Alia Benali  
Dr. Dominik Brugger  
Dr. Shubodeep Chakrabarti  
Dr. Enrico Chiovetto  
Dr. Peter Dicke  
Dr. Dominik Endres  
Dr. Bianca de Haan  
Dr. Winfried Ilg  
Dr. Axel Lindner  
Dr. Jason Martin  
Dr. Christine Pedroarena  
Dr. Tobias Pflugshaupt  
Dr. Jörn Pomper  
Piret Rebassoo  
Dr. Julia Suchan (until 12/2012)

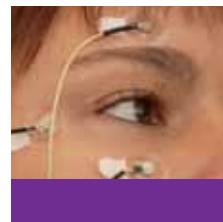
#### Technical staff/Administration

Mirjana Angelovska  
Ina Baumeister  
Rüdiger Berndt  
Ira Breitkreuz (until 09/2012)  
Dr. Friedemann Bunjes  
Ute Großhennig  
Dagmar Heller-Schmerold  
Dr. Martin Löffler  
Ursula Pascht

#### PhD Doctoral Students

Daniel Arnstein  
Artin Atabaki  
Tobias Beck

Svenja Borchers  
Christoph Budziszewski  
Andrea Christensen  
André Maia Chagas  
Sonja Cornelisen  
Nabil Daddaoua  
Petya Georgieva  
Salah Hamodeh  
Julian Hofmann  
Bettina Joachimsthaler  
Marc Junker  
Mohammad Khazali  
Dongyun Li  
David Mack  
Karolina Marciniak  
Urszula Mihulowicz  
Jens R. Müller  
Albert Mukovskiy  
Nima Noury (until 06/2012)  
Bartholomäus Odoj  
Artur Pilacinski  
Barbara Piotrowska  
Hamidreza Ramezanpour  
Johannes Rennig  
Manuel Roth  
Akshay Sharma  
Cornelia Schatton  
Aleksandra Smilgin  
Zong-Peng Sun  
Nick Taubert  
Christian Waiblinger  
Melanie Wallscheid  
Ann-Kristin Weiser  
Barbara Wirxel  
Ida Zündorf



### Medical Doctoral Students

Heike Beha  
Caroline Bergner (until 07/2012)  
Maria Bither  
Anna Maria Friemann  
Lena Gebert  
Magdalena Gössling (until 07/2012)  
Kathrin Konzelmann  
Karla Lauer  
Lukas Olszewski  
Sebastian Scheidt  
Isabelle Schmeh (until 07/2012)  
Jessica Schwarz

# ANNUAL REPORT

## DEPARTMENT OF COGNITIVE NEUROLOGY

Evgeny Sheygal  
Tine Stoll  
Carlo Wilke  
Lisa Ziegler

### Master Students

Daniel Arnstein (until 07/2012)  
Thomas Börner (until 07/2012)  
Anne Brauer  
Seda Cavdaroglu  
Marina Fridman (until 05/2012)  
Nele Hellbernd  
Elisabeth Kiely (until 06/2012)  
Björn Müller  
Lara Neugebauer  
Girija Ravishankar  
Tim Schroeder (until 07/2012)  
David Wojnar

### Diploma Students

Monika Eckstein  
Katrin Festl (until 01/2012)

## CLINICAL STUDIES

Quantification of subtle movement changes in healthy subjects with increased echogenicity of the substantia nigra.

Investigators: W. Ilg, I. Liepelt, C. Urban, N. Röhrich, M. A. Giese, D. Berg

Motor learning in patients suffering from cerebellar ataxia.

Investigators: W. Ilg, M. Synofzik, S. Burkhard, D. Brötz, M. A. Giese, L. Schöls

Examination of the influence of visual feedback on real and pantomimed object use in apraxia.

Investigators: A. Christensen, W. Ilg, M. A. Giese, H.-O. Karnath

Affective biological motion recognition in schizophrenia.

Investigators: J. Peterman, S. Park, M. A. Giese, A. Christensen, J. Mayer

Die Rolle des parietalen Kortex bei der Wahrnehmung der eigenen Bewegungen.

Investigators: M. Synofzik, A. Lindner

Examination of the influence of the cerebellum on the interaction between action and perception.

Investigators: D. Timmann-Braun, W. Ilg, A. Christensen, M. A. Giese

Videogame-based coordinative training in children with degenerative ataxia.  
Investigators: W. Ilg, M. Synofzik, M. A. Giese, L. Schöls

Neurobiologische Grundlagen der Emotionserkennung aus menschlichen Gangsequenzen bei Gesunden und Patienten mit psychischen Erkrankungen.  
Investigators: A.-C. Ehli, A. Christensen, A. Fallgatter, M. A. Giese

## THIRD-PARTY FUNDING

### Ongoing Grants

#### **Neuroanatomy of selective attention: testing the competitive interaction hypothesis (Juniorantrag) (F 1312057.1)**

Project leader: Dr. Bianca de Haan  
Funding institution: Faculty of Medicine, University of Tübingen, fortüne program  
Funding period: 1 year  
Awarded on: April 7, 2011

#### **Selektive Aufmerksamkeit und bewusste Wahrnehmung: Die Überprüfung der Hypothese konkurrierender Interaktionen (HA 5839/3-1)**

Project leader: Dr. Bianca de Haan, Prof. Dr. Dr. Hans-Otto Karnath  
Funding institution: Deutsche Forschungsgemeinschaft (DFG)  
Funding period: 02/2012 – 01/2015  
Awarded on: September 26, 2011

#### **Setup and maintenance of the Section for Computational Sensomotorics (EXC 307 – CIN)**

Project leader: Prof. Dr. Martin Giese  
Funding institution: Deutsche Forschungsgemeinschaft (DFG)  
Funding period: 08/2008 – 10/2017  
Awarded on: October 26, 2007



#### **Neural encoding of visual action stimuli in mirror neurons in monkey premotor area F5 (GI 305/4-1)**

Project leader: Prof. Dr. Martin Giese, Prof. Dr. Peter Thier  
Funding institution: Deutsche Forschungsgemeinschaft (DFG)  
Funding period: 09/2010 – 08/2013  
Awarded on: August 3, 2010

#### **Adaptive modular architecture for rich motor skills (ICT-248311-AMARSI)**

Project leader: Prof. Dr. Martin Giese  
Funding institution: EU  
Funding period: 03/2010 – 02/2014  
Awarded on: February 26, 2010

# ANNUAL REPORT

## DEPARTMENT OF COGNITIVE NEUROLOGY

### Emotional interaction grounded in realistic context (ICT-249858 TP3-TANGO)

Project leader: Prof. Dr. Martin Giese  
Funding institution: EU  
Funding period: 04/2010 – 03/2013  
Awarded on: April 29, 2010

### Adaptive Brain Computations (PITN-GA-011-290011-ABC)

Project leader: Prof. Dr. Martin Giese  
Funding institution: EU Training Network (ITN)  
Funding period: 06/2012 – 05/2016  
Awarded on: December 08, 2011

### Human reaching and grasping – cognitive networks of visual action control (ERC-2007-StG 211078-GRASP-CN)

Project leader: Dr. Marc Himmelbach  
Funding institution: EU  
Funding period: 09/2008 – 08/2013  
Awarded on: August 26, 2008

### Beteiligung der Colliculi superiores an der räumlichen Planung und Ausführung von visuell gesteuerten Handbewegungen (HI 1371/1-1)

Project leader: Dr. Marc Himmelbach, Prof. Dr. Dr. Hans-Otto Karnath  
Funding institution: Deutsche Forschungsgemeinschaft (DFG)  
Funding period: 09/2008 – 04/2013  
Awarded on: December 13, 2007

### Schülerlabor Neurowissenschaften (00.139.2008)

Project leader: Prof. Dr. Uwe Ilg  
Funding institution: Tschira-Foundation  
Funding period: 01/2009 – 07/2012  
Awarded on: September 3, 2008

### Videogame-based coordinative training in children with degenerative ataxia

Project leader: Dr. Winfried Ilg, Dr. Matthias Synofzik  
Funding institution: Oliver-Vaihinger-Fond, Stiftung für kranke Kinder  
Funding period: starting 07/2011  
Awarded on: May 26, 2011

### Störungen motorischen Handelns nach Schädigungen des parietalen und des temporalen Kortex beim Menschen (KA 1258/10-1)

Project leader: Prof. Dr. Dr. Hans-Otto Karnath, Dr. Marc Himmelbach  
Funding institution: Deutsche Forschungsgemeinschaft (DFG)  
Funding period: 01/2010 – 09/2013  
Awarded on: November 5, 2009

**Symptomorientierte voxelbasierte statistische Läsionsanalyse bei Aphasie und Akalkulie  
(KA 1258/11-1)**

Project leader: Prof. Dr. Dr. Hans-Otto Karnath  
Funding institution: Deutsche Forschungsgemeinschaft (DFG)  
Funding period: 07/2010 – 06/2014  
Awarded on: November 9, 2009

**Selektive auditive räumliche Aufmerksamkeit in akustisch komplexen Situationen  
(KA 1258/12-1)**

Project leader: Prof. Dr. Dr. Hans-Otto Karnath  
Funding institution: Deutsche Forschungsgemeinschaft (DFG)  
Funding period: 07/2010 – 06/2013  
Awarded on: May 27, 2010

**Mechanismen und Störungen visuell gesteuerter Alltagshandlungen (KA 1258/15-1)**

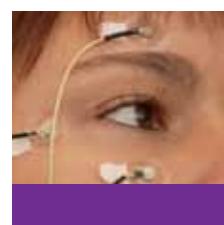
Project leader: Prof. Dr. Dr. Hans-Otto Karnath, Prof. Dr. Martin Giese  
Funding institution: Deutsche Forschungsgemeinschaft (DFG)  
Funding period: 05/2012 – 04/2015  
Awarded on: July 29, 2011

**How do cortical representations of eye position impact spatial cognition?  
(FP7-People-2009-IEF)**

Project leader: Prof. Dr. Dr. Hans-Otto Karnath  
Funding institution: EU  
Funding period: 09/10 – 08/12  
Awarded on: August 6, 2010

**How do cortical representations of eye position impact spatial cognition? (Nr. 09-072209)**

Project leader: Prof. Dr. Dr. Hans-Otto Karnath  
Funding institution: Danish Council  
Funding period: 09/2010 – 08/2012  
Awarded on: September 8, 2010



**European Research Network for Investigating Human Sensorimotor Function in Health and Disease (05RNPo89 ERNI-HSF)**

Project leader: Prof. Dr. Dr. Hans-Otto Karnath  
Funding institution: The European Science Foundation (ESF)  
Funding period: 01/2007 – 12/2012  
Awarded on: December 2006

**ERNI-Conference: „Orienting of attention: neural implementation, underlying mechanisms and clinical implications“ (Science Meeting No. 4248)**

Project leader: Prof. Dr. Dr. Hans-Otto Karnath  
Funding institution: The European Science Foundation (ESF)  
Funding period: 11/2012  
Awarded on: March 16, 2012

# ANNUAL REPORT

## DEPARTMENT OF COGNITIVE NEUROLOGY

### Cerebral processing of multimodal emotional signals

Project leader: Prof. Dr. Dirk Wildgruber, Prof. Dr. Dr. Hans-Otto Karnath  
Funding institution: Deutsche Forschungsgemeinschaft (DFG)  
Funding period: 12/2011 – 11/2012  
Awarded on: September 29, 2011

### National Network of Computational Neuroscience (Bernstein Center). Projekt “Die neuro-nalen Grundlagen sensorischer Vorhersagen für Wahrnehmung und Verhalten”, C4

Project leader: Dr. Axel Lindner, Prof. Dr. Martin Giese  
Funding institution: Federal Ministry of Education and Research (BMBF)  
Funding period: 05/2010 – 04/2015  
Awarded on: July 5, 2010

### Entwicklung von dynamischer Hirnstimulation für die Anwendung in zukünftigen kortikalen sensorischen Neuroprothesen (SCHW 577/9-1)

Project leader: Prof. Dr. Cornelius Schwarz  
Funding institution: Deutsche Forschungsgemeinschaft (DFG)  
Funding period: 08/2009 – 01/2013  
Awarded on: April 22, 2009

### FG BARREL CORTICAL FUNCTION, TP 6 Neuronal processing of task-specific afferent whisker information in the rat barrel cortex (SCHW 577/10-1)

Project leader: Prof. Dr. Cornelius Schwarz  
Funding institution: Deutsche Forschungsgemeinschaft (DFG)  
Funding period: 01/2010-12/2012  
Awarded on: December 4, 2009

### National Network of Computational Neuroscience (Bernstein Center). Projekt “Bildgebung neuronaler Populationskodierungen von Wahrnehmungsgrößen in wachen Tieren”, B2

Project leader: Prof. Dr. Cornelius Schwarz  
Funding institution: Federal Ministry of Education and Research (BMBF)  
Funding period: 05/2010 – 04/2015  
Awarded on: July 5, 2010

### D-USA-Verbund: Wie dynamisch ist neuronale Kodierung? Zustandsabhängige Stimulus-selektivität in thalamo-cortikalen Netzwerken im Tasthaarsystem der Ratte (01GQ1113)

Project leader: Prof. Dr. Cornelius Schwarz  
Funding institution: Federal Ministry of Education and Research (BMBF)  
Funding period: 12/2011 – 10/2014  
Awarded on: October 28, 2011

**From 3D surface models to the cellular and molecular architecture of the dentate nucleus:  
characterizing human-typical traits in the cerebellum (SU 171/3-1)**

Project leader: PD Dr. Fahad Sultan  
Funding institution: Deutsche Forschungsgemeinschaft (DFG)  
Funding period: 11/2011 – 10/2014  
Awarded on: July 25, 2011

**Cerebellar-Cortical Control: Cells, Circuits, Computation, and Clinic (C7)  
(PITN-GA-2009-238214)**

Project leader: Prof. Dr. Peter Thier  
Funding institution: EU  
Funding period: 11/2009 – 10/2013  
Awarded on: September 30, 2009

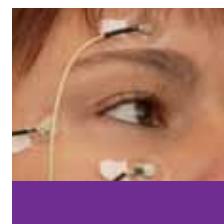
**National Network of Computational Neuroscience (Bernstein Center)  
Projekt “Inferenzprozesse in der visuellen Bewegungswahrnehmung”, C3**

Project leader: Prof. Dr. Peter Thier, Prof. Dr. Martin Giese  
Funding institution: Federal Ministry of Education and Research (BMBF)  
Funding period: 05/2010 – 04/2015  
Awarded on: July 5, 2010

**New Grants**

**Corticofugal control of brainstem sensory gating in the rodent whisker system (CH 1232/1-1)**

Project leader: Dr. Shubhodeep Chakrabarti  
Funding institution: Deutsche Forschungsgemeinschaft (DFG)  
Funding period: 10/2012 – 09/2015  
Awarded on: July 26, 2012



**Schülerlabor Neurowissenschaften (32.5.8051.0149.1)**

Project leader: Prof. Dr. Peter Thier  
Funding institution: Robert Bosch Foundation  
Funding period: 10/2012 – 09/2015  
Awarded on: July 26, 2012

**Towards the neural basis of joint attention (TH 425/12-1)**

Project leader: Prof. Dr. Peter Thier  
Funding institution: Deutsche Forschungsgemeinschaft (DFG)  
Funding period: 01/2013 – 12/2015  
Awarded on: December 21, 2012

# ANNUAL REPORT

## DEPARTMENT OF COGNITIVE NEUROLOGY

### ERNI-Conference: „Orienting of attention: neural implementation, underlying mechanisms and clinical implications“ (Science Meeting No. 4248)

Project leader: Prof. Dr. Dr. Hans-Otto Karnath  
Funding institution: The European Science Foundation (ESF)  
Funding period: 11/2012  
Awarded on: March 16, 2012

### Functional neuroimaging of the human tectum at 9,4 T (EXC 307-CIN)

Project leader: Dr. Marc Himmelbach, Prof. Dr. Dr. Hans-Otto Karnath  
Funding institution: Deutsche Forschungsgemeinschaft (DFG)  
Funding period: 04/2013-03/2015  
Awarded on: November 15, 2012

### Bewertung der Funktionalität von Objekten und schlussfolgerndes Denken über mechanische Probleme (HI 1371/2-1)

Project leader: Dr. Marc Himmelbach, Prof. Dr. Dr. Hans-Otto Karnath  
Funding institution: Deutsche Forschungsgemeinschaft (DFG)  
Funding period: 36 months  
Awarded on: December 18, 2012

### Evaluation of object functionality and mechanical reasoning in humans (fortüne F1312065)

Project leader: Dr. Marc Himmelbach, Prof. Dr. Dr. Hans-Otto Karnath  
Funding institution: Medical Faculty, University of Tübingen  
Funding period: 01/2013-12/2013  
Awarded on: November 19, 2012

### Reorganisation kognitiver Funktionen nach Schlaganfall

Project leader: Prof. Dr. Dr. Hans-Otto Karnath  
Funding institution: The German Academic Exchange Service (DAAD)  
Funding period: 01/2013 – 12/2014  
Awarded on: October 24, 2012

### Move'n Up: Videospiel-basiertes koordinatives Training für rollstuhlpflichtige Kinder mit erblicher Ataxie

Project leader: Dr. Matthias Synofzik, Dr. Winfried Ilg  
Funding institution: Katarina Witt-Stiftung  
Funding period: 08/2012 – 12/2013  
Awarded on: August 1, 2012

### MOVE'n FUN: Videogame-based coordinative training in children with degenerative ataxia

Project leader: Dr. Matthias Synofzik, Dr. Winfried Ilg  
Funding institution: Ataxia UK  
Funding period: 02/2012 – 12/2013  
Awarded on: January 24, 2012

## **Einfluss der Objekterkennung auf die neuronalen Prozesse der Steuerung von Greifbewegungen (PK 2012-23)**

Project leader: Prof. Dr. Dr. Hans-Otto Karnath  
Funding institution: Faculty of Medicine, University of Tübingen,  
IZKF Promotionskolleg  
Funding period: 04/2012 – 03/2013  
Awarded on: February 14, 2012

## **AWARDS**

### **Dr. Danila Balslev**

Attempo Prize 2012, Universitätsbund Tübingen

### **Dr. Winfried Ilg**

Heredo-Ataxie-Preis 2012, Deutsche Heredo-Ataxie-Gesellschaft

### **Prof. Dr. Martin Giese**

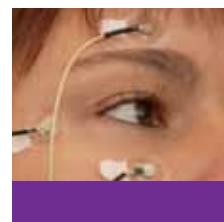
Teaching Award of the Graduate School for Neural and Behavioural Sciences

### **Dr. Dominik Endres**

Teaching Award of the Graduate School for Neural and Behavioural Sciences

## **PHD THESES (COMPLETED IN 2012)**

Applicant: Daniel Oberhoff  
**Hierarchical probabilistic graphical models for image recognition**  
Supervisor: Prof. Dr. Martin Giese  
Faculty: Ulm University



Applicant: Julia Suchan  
**Lateralization aspects of spatial orienting in humans: Evidence from acute stroke patients and healthy subjects**  
Supervisor: Prof. Dr. Dr. Hans-Otto Karnath  
Faculty: Graduate Training Centre of Neuroscience

Applicant: Svenja Borchers  
**The impact of object familiarity on visuomotor programming**  
Supervisor: Dr. Marc Himmelbach  
Faculty: Graduate Training Centre of Neuroscience

# ANNUAL REPORT

## DEPARTMENT OF COGNITIVE NEUROLOGY

### MEDICAL THESES (COMPLETED IN 2012)

- Applicant: Kathrin Johanna Konzelmann  
**Untersuchung der subjektiven visuellen Vertikalen bei Gesunden und Schlaganfallpatienten mit akuten unilateralen zentralen Läsionen und den anatomischen Korrelaten einer gestörten Vertikalrezeption**  
Supervisor: Prof. Dr. Dr. Hans-Otto Karnath
- Applicant: Caroline Bergner  
**Psychophysik und neuronale Kodierung vibratiler Stimuli im Tasthaarsystem der Ratte**  
Supervisor: Prof. Dr. Cornelius Schwarz
- Applicant: Magdalena Gössling  
**Die Rolle interner Vorhersagen bei Morbus Parkinson**  
Supervisors: Prof. Dr. Peter Thier, Dr. Matthias Synofzik
- Applicant: Julia Monika Schwarz  
**Detektion visueller Formagnosie nach unilateraler Hirnschädigung**  
Supervisor: Prof. Dr. Dr. Hans-Otto Karnath
- Applicant: Isabella Schmeh  
**Genexpression von potentiellen Modulatoren inhibitorischer Neurotransmission in der Maus-Mutante Lurcher**  
Supervisor: Prof. Dr. Cornelius Schwarz

### DIPLOMA/MASTERS THESES (COMPLETED IN 2012)

- Applicant: Girija Ravishankar  
**Neural theories for the recognition of dynamic faces in monkey cortex**  
Supervisor: Prof. Dr. Martin Giese  
Faculty: Graduate Training Centre of Neuroscience
- Applicant: Monika Eckstein  
**Investigating the separate contributions of the IPL and the SPL in visual search and bisection**  
Supervisor: Prof. Dr. Dr. Hans-Otto Karnath  
Faculty: Faculty of Science, University of Tübingen
- Applicant: Anne Brauer  
**Cue and target related activity in response to bilateral stimuli: an fMRI study**  
Supervisors: Prof. Dr. Dr. Hans-Otto Karnath, Dr. Bianca de Haan  
Faculty: Graduate Training Centre of Neuroscience
- Applicant: Marina Fridman  
**Looking for the path not taken: An investigation of the influence of alternative motor plans on reach trajectories and self-action perception**  
Supervisor: Dr. Axel Lindner  
Faculty: Graduate Training Centre of Neuroscience

Applicant:

Daniel Arnstein

**A psychophysical task of action understanding for primates**

Supervisor:

Prof. Dr. Peter Thier

Faculty:

Graduate Training Centre of Neuroscience

Applicant:

Thomas Börner

**Inhibitory activity in the barrel cortex during whisker mediated trace eyeblink conditioning**

Supervisor:

Prof. Dr. Cornelius Schwarz

Faculty:

Graduate Training Centre of Neuroscience

Applicant:

Tim Schröder

**Dynamic encoding of tactile stimuli in primary afferents of the rat's whisker pathway**

Supervisor:

Prof. Dr. Cornelius Schwarz

Faculty:

Graduate Training Centre of Neuroscience

Applicant:

Julian Hofmann

**Contributions of GABA<sub>A</sub>-receptor subunits to tactile coding in local field potentials in the primary somatosensory cortex of the awake mouse**

Supervisor:

Prof. Dr. Cornelius Schwarz

Faculty:

Faculty of Science, University of Tübingen

Applicant:

Natalie Mandel

**Die Diagnose der optischen Ataxie im Zusammenhang mit propriozeptiven Defiziten**

Supervisor:

Dr. Marc Himmelbach

Faculty:

Faculty of Science, University of Tübingen

Applicant:

Elizabeth Kiely

**Investigating reach-related activity in the human superior colliculus: an fMRI study**

Supervisor:

Dr. Marc Himmelbach

Faculty:

Graduate Training Centre of Neuroscience

Applicant:

Helene Wiesmann

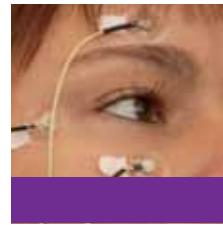
**Aufmerksamkeitsverlagerung bei wöchentlicher Computer- und Konsolenspielzeit**

Supervisor:

Prof. Dr. Uwe Ilg

Faculty:

Faculty of Science, University of Tübingen



Applicant:

Lara Neugebauer

**Neuromodulation der selektiven auditiven räumlichen Aufmerksamkeit in aktustisch komplexen Situationen mit transkranieller Gleichstromsimulation**

Supervisor:

Prof. Dr. Dr. Hans-Otto Karnath

Faculty:

Graduate Training Centre of Neuroscience

# ANNUAL REPORT

## DEPARTMENT OF COGNITIVE NEUROLOGY

### CONFERENCES

#### 5th Primate Neurobiology Conference

Tübingen, 12.-14.03.2012

Scientific Coordinator: Prof. Dr. Peter Thier

#### ESF-ERNI Science Meeting: Orientation of Attention: Neuroal Implementation, Underlying Mechanisms and Clinical Implications

Tübingen, 02.-03.11.2012

Scientific Coordinators: Prof. Dr. Dr. Hans -Otto Karnath, Dr. Daniela Balslev

#### AMARSi Symposium „Adaptive Motor Primitives in Brains and Machines“

Tübingen, 05.-07.11.2012

Scientific Coordinator: Prof. Dr. Martin Giese

### STUDENT TRAINING

#### Lectures (Summer Term/Winter Term)

##### Motor Systems

Faculty: Graduate Training Center of Neuroscience  
Coordinator: Prof. Dr. Peter Thier

##### Grundlagen der Neurologie

Faculty: Medicine  
Lecturer: Prof. Dr. Dr. Hans-Otto Karnath

##### Motor Systems

Faculty: Graduate Training Centre of Neuroscience  
Lecturer: Prof. Dr. Peter Thier

##### Fundamentals of Sensorimotor Integration

Faculty: Faculty of Science  
Lecturer: Prof. Dr. Uwe Ilg

##### Brain Stimulation Technique – TMS

Faculty: Graduate Training Centre of Neuroscience  
Lecturer: Dr. Daniela Balslev, Dr. Sonja Cornelsen

##### Neural Motor Control

Faculty: Graduate Training Centre of Neuroscience  
Lecturer: Dr. Winfried Ilg

##### Machine Learning II

Faculty: Graduate Training Centre of Neuroscience  
Lecturer: Prof. Dr. Martin Giese, Dr. Dominik Endres

### **Perception, Cognition and Behaviour**

Faculty: Graduate Training Centre of Neuroscience  
Lecturer: Dr. Marc Himmelbach, Dr. Bianca de Haan

### **Behaviour and Cognition: Neuropsychology**

Faculty: Graduate Training Centre of Neuroscience  
Lecturer: Prof. Dr. Dr. Hans-Otto Karnath

### **Functional Organization of Vertebrate CNS**

Faculty: Graduate Training Centre of Neuroscience  
Lecturer: PD Dr. Fahad Sultan

### **Molekulare Medizin – Neuroanatomie**

Faculty: Medicine  
Lecturer: PD Dr. Fahad Sultan

### **Methods in Neuropsychology**

Faculty: Graduate Training Centre of Neuroscience  
Lecturers: Dr. Marc Himmelbach, Dr. Bianca de Haan

### **Neurophysiology**

Faculty: Graduate Training Centre of Neuroscience  
Lecturers: Prof. Dr. Cornelius Schwarz, Dr. Christine Pedroarena

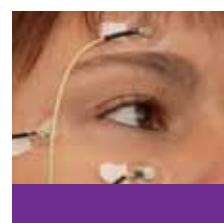
### **Dynamics of Neural Systems**

Faculty: Graduate Training Centre of Neuroscience  
Lecturer: Prof. Dr. Martin Giese

## **Seminars and Courses**

### **Neurokolloquium**

Host: Miscellaneous  
Coordinator: Prof. Dr. Peter Thier



### **Neurobiologisches Montagskolloquium**

Host: Miscellaneous  
Coordinator: Prof. Dr. Uwe Illg

### **Weekend Seminar on Neural Prosthetics**

Host: Graduate Training Centre of Neuroscience  
Coordinator: Dr. Axel Lindner

### **Lab Practicals Neurophysiology**

Host: Graduate Training Centre of Neuroscience  
Coordinator: Prof. Dr. Cornelius Schwarz

# ANNUAL REPORT

## DEPARTMENT OF COGNITIVE NEUROLOGY

### Aktuelle Probleme in der Neuropsychologie

Host: Prof. Dr. Dr. Hans-Otto Karnath  
Coordinator: Prof. Dr. Dr. Hans-Otto Karnath

### Praktikum Klinische Neuropsychologie

Host: Prof. Dr. Dr. Hans-Otto Karnath  
Coordinator: Prof. Dr. Dr. Hans-Otto Karnath

### Aktuelle Probleme der Sensomotorik

Host: Prof. Dr. Peter Thier  
Coordinator: Prof. Dr. Peter Thier

### Neurobiologie des Kleinhirns

Host: Prof. Dr. Peter Thier  
Coordinator: Prof. Dr. Peter Thier

### Machine Learning II (Übungen)

Host: Prof. Dr. Martin Giese, Dr. Dominik Endres  
Coordinator: Prof. Dr. Martin Giese

### Tübingen International Summer School

Host: Forum Scientiarum,  
Werner Reichardt Centre for Integrative Neuroscience (CIN)  
Coordinators: Dr. Kirsten Volz, Dr. Liz Irvine, Dr. Hong-Yu Wong, Dr. Axel Lindner

### CIN Systems Neuroscience Retreat

Host: Werner Reichardt Centre for Integrative Neuroscience (CIN)  
Coordinator: Dr. Ziad Hafed, Dr. Marc Himmelbach, Dr. Axel Lindner

### Tierphysiologischer Kurs für Bioinformatiker

Host: Prof. Dr. Uwe Ilg  
Coordinator: Prof. Dr. Uwe Ilg

### Fachdidaktik: Neurobiologie in der Schule

Host: Prof. Dr. Uwe Ilg  
Coordinator: Prof. Dr. Uwe Ilg

### Dynamics of Neural Systems (Übungen)

Host: Prof. Dr. Martin Giese, Tobias Beck  
Coordinator: Prof. Dr. Martin Giese

## LAB ROTATIONS

*Summer Term 2012*

Nicolas Ludolph

**The influence of motor variance on reinforcement learning for motor adaptation**

Coordinator: Dr. Winfried Ilg

Gündüz Rümeysa

**An MRI-guided TMS investigation of the neural correlates that mediate online-control of reach-to-grasp actions**

Coordinators: Prof. Dr. Dr. Hans-Otto Karnath, Dr. Marc Himmelbach

Galyna Pidpruzhnikova

**Layer specificity in perception of cortical microstimulation**

Coordinator: Prof. Dr. Cornelius Schwarz

Shervin Safavi

**Towards understanding the neural computations in recognition of dynamic faces**

Coordinator: Prof. Dr. Martin Giese

Dmytro Velychko

**Implementation of a versatile machine-learning framework for human psychophysical experiments in a virtual reality**

Coordinators: Dr. Dominik Endres, Prof. Dr. Martin Giese

Cody Merritt

**The facets of high-level action semantics in behaviour and the human brain**

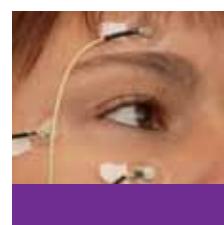
Coordinators: Dr. Dominik Endres, Prof. Dr. Martin Giese

*Winter Term 2012/2013*

Marcus Siems

**fMRI resting-state networks of the human superior colliculi**

Coordinator: Dr. Marc Himmelbach



# ANNUAL REPORT

## DEPARTMENT OF CELLULAR NEUROLOGY

### CLINICAL AND SCIENTIFIC STAFF

#### Head of the Department

Prof. Dr. Mathias Jucker

#### Group leaders

Dr. Frank Baumann

Prof. Dr. Christoph Laske (Section of Dementia Research, jointly with the Clinic Psychiatry)

#### Scientists/Residents

Dr. Yvonne Eisele

Sarah Fritschi

Dr. Petra Füger

Jasmin Hefendehl

Götz Heilbronner

Stephan Käser

Franziska Langer

Jasmin Mahler

Luis Maia

Dr. Giusi Manfredi

Dr. Anne-Marie Marzcesco

Amudha Nagarathinam

Dr. Jonas Neher

Renata Novotny

Dr. Jörg Odenthal

Manuel Schweighauser

Dr. Angelos Skodras

Dr. Nicholas Varvel

Dr. Bettina Wegenast-Braun

Ulla Welzel

Jan Winchenbach

Lan Ye

#### Technical staff/Administration

Andrea Bosch

Isolde Breuer

Anika Bühler

Simone Eberle

Bernadette Graus

Michael Hruscha

Christian Krüger

Ulrike Obermüller

Claudia Schäfer

## Medical Doctoral Students

Niels Rupp

## Master Students

Mehtap Bacioglu  
Karoline Degenhart  
Borka Jojic  
Jasmin Mahler

## CLINICAL STUDIES

DIAN Dominantly Inherited Alzheimer Network: The goal of DIAN is to study brain changes and biomarker changes in people who carry an Alzheimer's disease mutation to determine how the disease process develops before any symptoms are detected.  
Investigators: M. Jucker, C. Laske, S. Gräber-Sultan, T. König, N. Köhler

## THIRD-PARTY FUNDING

### Ongoing Grants

#### Generation of APP transgenic mice

Project leader: Prof. Dr. Mathias Jucker  
Funding institution: Koesler  
Funding period: 01/2005 – 12/2012  
Awarded on: December 29, 2004

#### ERA-Net "NEURON" Transfer of misfolded protein as a pathogenetic mechanism in neuro-degenerative disease (01EW0901)

Project leader: Prof. Dr. Mathias Jucker  
Funding institution: Federal Ministry of Education and Research (BMBF) / German Aerospace Center (DLR), Project Management Agency  
Funding period: 02/2009 – 01/2012  
Awarded on: February 11, 2009

#### EC-FP7 (LUPAS, Luminescent polymers for in vivo imaging of amyloid signatures) FP7-Health-2009-1.2-5, Project No. 242098s

Project leader: Prof. Dr. Mathias Jucker  
Funding institution: Commission of the European Community  
Funding period: 11/2009 – 10/2012  
Awarded on: October 22, 2009



# ANNUAL REPORT

## DEPARTMENT OF CELLULAR NEUROLOGY

### Membrane anchored A $\beta$ as a prerequisite for neurotoxicity in vitro and in vivo? (BA 2257/2-1)

Project leader: Dr. Frank Baumann  
Funding institution: Deutsche Forschungsgemeinschaft (DFG)  
Funding period: 02/2010 – 02/2013  
Awarded on: December 17, 2009

### AD pathologies in the absence of microglia (NIRG-10-173099)

Project leader: Dr. Nicholas Varvel  
Funding institution: Alzheimer's Association USA  
Funding period: 10/2010 – 09/2012  
Awarded on: September 3, 2010

### Kompetenznetz Demenzen – Amyloid (01Gl1004F)

Project leader: Prof. Dr. Mathias Jucker  
Funding institution: Federal Ministry of Education and Research (BMBF)/  
German Aerospace Center (DLR), Project Management  
Agency  
Funding period: 01/2011 – 12/2013  
Awarded on: February 21, 2011

### NGFN-Plus: Pathomechanism of Cerebral Amyloid Angiopathy (01GS08131), 2<sup>nd</sup> funding

Project leader: Prof. Dr. Mathias Jucker  
Funding institution: Federal Ministry of Education and Research (BMBF)/  
German Aerospace Center (DLR), Project Management  
Agency  
Funding period: 06/2011 – 05/2013  
Awarded on: May 16, 2011

### Research fellowship

Project leader: Luis Oliveira da Maia  
Funding institution: Ministério da Ciéncia e de Tecnologia, Lisboa  
Funding period: 12/2010 – 12/2012  
Awarded on: May 21, 2010

### Donation for Alzheimer research

Project leader: Prof. Dr. Mathias Jucker  
Funding institution: Anonymous donor  
Funding period: 12/2010 – 12/2012  
Awarded on: December 10, 2010

### Roman Herzog Postdoctoral Fellowship

Project leader: Dr. Jonas Neher  
Funding institution: Hertie Foundation  
Funding period: 12/2011 – 11/2012  
Awarded on: June 9, 2011

## New Grants

### Generation of APP transgenic mice

Project leader: Prof. Dr. Mathias Jucker  
Funding institution: Koesler  
Funding period: 01/2012 – 12/2012  
Awarded on: January 10, 2012

### Research fellowship, extension

Project leader: Luis Oliveira da Maia  
Funding institution: Ministério da Ciéncia e de Tecnologia, Lisboa  
Funding period: 12/2012 – 12/2013  
Awarded on: May, 2012

### Roman Herzog Postdoctoral Fellowship, Extension

Project leader: Dr. Jonas Neher  
Funding institution: Hertie Foundation  
Funding period: 12/2012 – 11/2013  
Awarded on: October 30, 2012

### Donation for Alzheimer Biomarker research

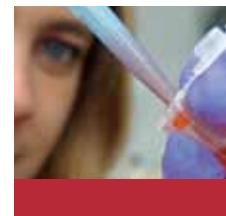
Project leader: Prof. Dr. Mathias Jucker  
Funding institution: Anonymous donor  
Funding period: 02/2013 – 01/2015  
Awarded on: November 26, 2012

### Organotypic Slice Cultures (031A198A)

Project leader: Prof. Dr. Mathias Jucker  
Funding institution: Federal Ministry of Education and Research (BMBF)/  
Project Management Jülich (PTJ)  
Funding period: 02/2013 – 01/2015  
Awarded on: November 27, 2012

### Donation for Alzheimer research

Project leader: Prof. Dr. Mathias Jucker  
Funding institution: Anonymous donor  
Funding period: 12/2012 – 12/2013  
Awarded on: December 10, 2012



# ANNUAL REPORT

## DEPARTMENT OF CELLULAR NEUROLOGY

### PHD THESES (COMPLETED IN 2012)

Applicant:	Jasmin Hefendehl
<b>In vivo 2-photon imaging of amyloid deposits in mouse models of cerebral amyloidosis</b>	
Supervisor:	Prof. Dr. Mathias Jucker
Faculty:	Faculty of Science, Faculty of Medicine, University of Tübingen
Applicant:	Franziska Langer
<b>Amyloid-β Aggregation – Insights from models for inducible β-Amyloidosis</b>	
Supervisor:	Prof. Dr. Mathias Jucker
Faculty:	Faculty of Science, Faculty of Medicine, University of Tübingen

### MEDICAL THESES (COMPLETED IN 2012)

Applicant:	Niels Rupp
<b>Early onset amyloid lesions lead to severe neuritic abnormalities and local but not global neuron loss in APPPS1 transgenic mice</b>	
Supervisor:	Prof. Dr. Mathias Jucker
Faculty:	Faculty of Medicine, University of Tübingen

### DIPLOMA/MASTERS THESES (COMPLETED IN 2012)

Applicant:	Methap Bacioglu
<b>Exogenous induction of alpha-synucleinopathy in transgenic mouse model</b>	
Supervisor:	Prof. Dr. Mathias Jucker
Faculty:	Faculty of Science, Faculty of Medicine, University of Tübingen
Applicant:	Bora Jojic
<b>Novel cell models to investigate molecular mechanisms of Aβ toxicity</b>	
Supervisor:	Dr. Frank Baumann
Faculty:	Faculty of Science, Faculty of Medicine, University of Tübingen
Applicant:	Jasmin Mahler
<b>Ex vivo and in vivo analysis of protein aggregates in transgenic mouse models of cerebral amyloidosis using luminescent conjugated oligothiophenes</b>	
Supervisor:	Dr. Bettina Wegenast Braun
Faculty:	Faculty of Science, Faculty of Medicine, University of Tübingen

## STUDENT TRAINING

### Lectures (Summer Term/Winter Term)

#### **Genetic and Molecular Basis of Neural Disease I**

Faculty: Graduate School of Cellular and Molecular Neuroscience  
Coordinators: Prof. Dr. Mathias Jucker, Dr. Frank Baumann,  
Prof. Dr. Thomas Gasser, Prof. Dr. Ludger Schöls

#### **Cellular and Molecular Neuroscience**

Faculty: Graduate School of Neuronal & Behavioural Sciences  
Coordinators: Prof. Dr. Horst Herbert, Dr. Frank Baumann

#### **Neurobiology for students of Molecular Medicine**

Faculty: Faculty of Medicine, University of Tübingen  
Coordinators: Prof. Dr. Thomas Gasser, Dr. Frank Baumann

### Seminars and Courses

#### **Neurohistology/pathology and Quantitative Neuromorphology**

Host: Graduate School of Cellular and Molecular Neuroscience  
Coordinators: Prof. Dr. Mathias Jucker, Dr. Yvonne Eisele,  
Dr. Bettina Wegenast-Braun

## LAB ROTATIONS

### *Summer Term 2012*

#### **Graduate School of Cellular and Molecular Neuroscience**

Coordinators: Prof. Dr. Mathias Jucker, Prof. Dr. Philipp Kahle,  
Dr. Simone Di Giovanni, Prof. Dr. Rejko Krüger,  
Prof. Dr. Ludger Schöls, Prof. Dr. Thomas Gasser, Dr. Ingrid Ehrlich

### *Winter Term 2012/2013*

#### **Graduate School of Cellular and Molecular Neuroscience**

Coordinators: Prof. Dr. Mathias Jucker, Prof. Dr. Rejko Krüger,  
Prof. Dr. Philipp Kahle, Prof. Dr. Ludger Schöls,  
Dr. Simone Di Giovanni, Dr. Tobias Rasse, Dr. Frank Baumann,  
Prof. Dr. Holger Lerche, Dr. Snezana Maljevic



# ANNUAL REPORT

## INDEPENDENT RESEARCH GROUP NEUROREGENERATION AND REPAIR

### CLINICAL AND SCIENTIFIC STAFF

#### Head of the Research Group

Dr. Simone Di Giovanni

#### Scientists/Residents

Henning Beck  
Mohamed Elnaggar  
Elisa Floriddia  
Kirsi Forsberg  
Arnau Hervera-Abad  
Yashashree Joshi  
Radhika Puttagunta  
Giorgia Quadrato  
Khizr Rathore

#### Technical staff/Administration

Andrea Sabino  
Anja Wuttke

#### Master Students

Gizem Inak

### THIRD-PARTY FUNDING

#### Ongoing Grants

##### The role of p53 and cGKI pathways in axonal regeneration following CNS injury

Project leader: Dr. Simone Di Giovanni  
Funding institution: Deutsche Forschungsgemeinschaft (DFG)  
Funding period: 02/2011-02/2014  
Awarded on: December 2011

##### The role of cGMP-GKI signalling in spinal cord axonal sprouting and regeneration following injury

Project leader: Dr. Simone Di Giovanni  
Funding institution: Wings for Life  
Funding period: 10/2010-10/2012  
Awarded on: June 2010

## **Enhancement of acetyl-p53 transcriptional activity to promote corticospinal regeneration and functional recovery following spinal injury**

Project leader: Dr. Simone Di Giovanni  
Funding institution: Wings for Life  
Funding period: 10/2010-09/2012  
Awarded on: June 2010

## **New Grants**

### **Molecular strategies to foster functional reinervation of the dysfunctional urinary sphincter using a novel p53-dependent**

Project leader: Dr. Simone Di Giovanni  
Funding institution: Deutsche Forschungsgemeinschaft (DFG)  
Funding period: 05/2012-04/2015  
Awarded on: May 2012

### **NFAT3 dependent transcriptome analysis in hippocampal neurogenesis and plasticity upon brain ischemia**

Project leader: Dr. Simone Di Giovanni  
Funding institution: Faculty of Medicine, University of Tübingen, fortüne programm  
Funding period: 09/2012-08/2013  
Awarded on: July 2012

## **PHD THESES (COMPLETED IN 2012)**

Applicant: Elisa Floriddia  
**Cellular and molecular mechanisms regulating CNS regeneration**  
Supervisor: Dr. Simone Di Giovanni  
Faculty: Graduate School of Cellular and Molecular Neuroscience

Applicant: Henning Beck  
**Serum Response Factor and Actin Treadmilling Influence Neuronal Mitochondrial Dynamics**  
Supervisor: Dr. B. Knöll, Dr. Simone Di Giovanni  
Faculty: Graduate School of Cellular and Molecular Neuroscience

## **DIPLOMA/MASTERS THESES (COMPLETED IN 2012)**

Applicant: Gizem Inak  
**Observing IL-4 effects on functional recovery, axonal regeneration, and glial response following spinal cord injury in the mice**  
Supervisor: Dr. Simone Di Giovanni  
Faculty: Graduate School of Cellular & Molecular Neuroscience,



# ANNUAL REPORT

## INDEPENDENT RESEARCH GROUP NEUROREGENERATION AND REPAIR

### STUDENT TRAINING

#### Lectures (Summer Term)

##### NeuroRegeneration and Neuro-Tissue Engineering

Faculty: Graduate School of Cellular and Molecular Neuroscience  
Coordinators: Dr. S. Di Giovanni, Prof. Dr. Schlosshauer

### LAB ROTATIONS

#### Winter Term 2012/2013

Ceren Duman

**NFATc4 role in the regulation of adult hippocampal neurogenesis following stroke injury**  
Coordinator: Dr. S. Di Giovanni

Ramazan Uyar

**Deletion of MDMX Leads to Enhanced p53 Transactivation and Neuroregeneration**  
Coordinator: Dr. S. Di Giovanni

### DIPLOMA/MASTERS THESES (COMPLETED IN 2012)

Applicant: Gizem Inak

**Observing IL-4 effects on functional recovery, axonal regeneration,  
and glial response following spinal cord injury in the mice**

Supervisor: Dr. Simone Di Giovanni

Faculty: Graduate School of Cellular and Molecular Neuroscience,  
Tübingen

# **INDEPENDENT RESEARCH GROUP**

## **PHYSIOLOGY OF LEARNING AND MEMORY**

### **CLINICAL AND SCIENTIFIC STAFF**

#### **Head of the Research Group**

Dr. Ingrid Ehrlich

#### **Scientists/Residents**

Dr. Daniel Bosch

#### **Technical staff/Administration**

Andrea Gall

#### **Master Students**

Alaa Sharif

Cyril Daniel

#### **PhD Doctoral Students**

Douglas Asede

Elsa Bonnard

Cora Hübner

### **THIRD-PARTY FUNDING**

#### **Ongoing Grants**

##### **Synaptic Mechanisms of Fear Memory in the amygdala: Role of plasticity in prefrontal cortical inputs and specialized inhibitory circuits**

Project leader: Dr. Ingrid Ehrlich

Funding institution: National Alliance for Research in Schizophrenia and Depression, USA (NARSAD)

Funding period: 07/2010 – 06/2012

Awarded on: June 2009

##### **Development of optogenetic tools for probing synaptic and network mechanisms in learning and memory**

Project leader: Dr. Ingrid Ehrlich, Dr. Anton Sirota

Funding institution: Werner Reichardt Centre for Integrative Neuroscience (CIN pool project Exc 307)

Funding period: 11/2010 – 10/2012

Awarded on: May 10, 2010



# ANNUAL REPORT

## INDEPENDENT RESEARCH GROUP PHYSIOLOGY OF LEARNING AND MEMORY

### Mechanisms underlying developmental changes in fear and extinction learning

Project leader: Dr. Daniel Bosch  
Funding institution: CIN, Exc 307 (Pool Project)  
Funding period: 04/2011 – 04/2013  
Awarded on: February 28, 2011

### Functional role of AMPA-R signaling at neuron-glia synapses in white matter

Project leader: Dr. Maria Kukley, Dr. Ingrid Ehrlich  
Funding institution: CIN, Exc 307 (Pool Project)  
Funding period: 12/2011 – 12/2012  
Awarded on: September 14, 2011

### Emotional modulation of ventral hippocampal connectivity with the amygdala

Project leader: Dr. Ingrid Ehrlich, Dr. Menahem Segal  
Funding institution: Werner Reichardt Centre for Integrative Neuroscience,  
Exc 307 (CIN-Weizmann project)  
Funding period: 01/2012 – 12/2012  
Awarded on: December 21, 2011

### New Grants

#### Function of axo-axonic synapses in amygdala circuits and fear learning and memory

Project leader: Dr. Ingrid Ehrlich, Dr. Hansjürgen Volkmer,  
Dr. Gal Richter-Levin  
Funding institution: Werner Reichardt Centre for Integrative Neuroscience  
(CIN pool project Exc 307)  
Funding period: 03/2013 – 02/2015  
Awarded on: December 15, 2012

## DIPLOMA/MASTERS THESES (COMPLETED IN 2012)

Applicant: Cyril Daniel  
**Developmental changes in the amygdala inhibitory circuit**  
Supervisor: Dr. Ingrid Ehrlich  
Faculty: University of Strasbourg, France

## **STUDENT TRAINING**

### **Lectures (Summer Term/Winter Term)**

#### **Molecular and Cellular Basis of Learning and Memory**

Faculty: Graduate School of Cellular & Molecular Neuroscience,  
Graduate School of Neural and Behavioral Sciences, Tuebingen  
Coordinator: Dr. Ingrid Ehrlich

#### **Neurobiology for students of Molecular Medicine**

Faculty: Faculty of Medicine, University of Tübingen  
Coordinator: Prof. Thomas Gasser

#### **Neurophysiology for students of Medicine, Dentistry and Molecular Medicine**

Faculty: Faculty of Medicine, University of Tübingen  
Coordinator: Prof. Olga Garaschuk

## **LAB ROTATIONS**

### *Summer Term 2012*

Marie Lechler  
**Department of Biochemistry, University Tübingen**  
Coordinator: Dr. Ingrid Ehrlich

Robert Konz  
**Department of Psychology, University Giessen**  
Coordinator: Dr. Ingrid Ehrlich

### *Winter Term 2012/2013*

Alaa Sharif  
**Graduate Training Center of Neuroscience**  
Coordinator: Dr. Ingrid Ehrlich



# ANNUAL REPORT

## INDEPENDENT RESEARCH GROUP SYNAPTIC PLASTICITY

### CLINICAL AND SCIENTIFIC STAFF

#### Head of the Research Group

Dr. Tobias Rasse

#### Scientists/Residents

Katharina Daub  
Shabab Hannan  
Jeannine Kern  
Josephine Ng  
Carola Schneider  
Vrinda Sreekumar  
Dr. Doychin Stanchev  
Dr. Karthikeyan Tangavelou,  
Dr. Natalia Veresceaghina  
Yao Zhang  
Jun-yi Zhu

### THIRD-PARTY FUNDING

#### Ongoing Grants

##### Characterizing the role of fluglotse's FHA domain

Project leader: Dr. Tobias Rasse  
Funding institution: Deutsche Forschungsgemeinschaft (DFG)  
Funding period: 08/2010 – 07/2013  
Awarded on: July 8, 2010

##### BMBF Antrag: CNDD Research Project 2 (FTD)

Project leader: Prof. Philipp Kahle  
Funding institution: Federal Ministry of Education and Research (BMBF)  
Funding period: 04/2011 – 12/2013  
Awarded on: September 17, 2010

#### New Grants

##### Synaptic lack of ATP: molecular cause of SPG10?

Project leader: Dr. Tobias Rasse  
Funding institution: Fritz Thyssen Foundation  
Funding period: 05/2012 – 04/2014  
Awarded on: February 13, 2012

## **STUDENT TRAINING**

### **Lectures (Summer Term/Winter Term)**

#### **Microscopy – Cell Imaging Techniques**

Faculty: Graduate School of Cellular & Molecular Neuroscience  
Coordinator: Dr. Tobias Rasse

#### **Model Organisms in Neurobiology**

Faculty: Graduate School of Cellular & Molecular Neuroscience  
Coordinator: Prof. Dr. Robert Feil

#### **Cell Biochemistry in Model Organisms**

Faculty: Faculty of Science, University of Tübingen  
Coordinator: Prof. Dr. Gabriele Dodt

### **Seminar and Courses**

#### **Cell Biochemistry in Model Organisms**

Coordinator: Prof. Dr. Gabriele Dodt

## **PHD THESES (COMPLETED IN 2012)**

Applicant: Yao Zhang

**The role of Kinesin-3 in regulating synaptic development in drosophila.**

Supervisor: Dr. Tobias Rasse

Faculty: Faculty of Science, University of Tübingen

Applicant: Petra Füger

**The drosophila neuromuscular junction as a model system to study the molecular mechanisms of neurodevelopment and synaptic regeneration**

Supervisor: Dr. Tobias Rasse

Faculty: Faculty of Science, University of Tübingen

Applicant: Jeannine Viola Kernber

**Die Bedeutung von Kinesin-1 und Kinesin-3 basiertem Transport für die Entwicklung und Stabilisierung von Drosophila melanogaster.**

Supervisor: Dr. Tobias Rasse

Faculty: Faculty of Science, University of Tübingen



# ANNUAL REPORT

## LIST OF PUBLICATIONS IN 2012 (IN ALPHABETICAL ORDER)

### PEER REVIEWED ARTICLES

- Albert MV, Catz N, Thier P, Kording K. Saccadic gain adaptation is predicted by the statistics of natural fluctuations in oculomotor function. *Front Comput Neurosci.* 2012;6:96:1-7. doi: 10.3389/fncom.2012.00096
- Arai N, Lu M-K, Ugawa Y, Ziemann U. Effective connectivity between human supplementary motor area and primary motor cortex: a paired-coil TMS study. *Experimental Brain Research* 2012; 220:79-87
- Appenzeller S, Thier S, Papengut F, Klein C, Hagenah J, Kasten M, Berg D, Srulijes K, Gasser T, Schreiber S, Deuschl G, Kuhlenbäumer G. No association between NOD2 variants and Parkinson's disease. *Mov Disord.* 2012 Aug;27(9):1191-2.
- Baier B, Suchan J, Karnath H-O, Dieterich M. Neural correlates of disturbed perception of verticality. *Neurology.* 2012;78:728-735.
- Balslev D, Himmelbach M, Karnath H-O, Borchers S, Odoj B. Eye proprioception used for visual localization only if in conflict with the oculomotor plan. *J Neurosci.* 2012;32:8569-8573.
- Balslev D, Newman W, Knox PC. Extraocular muscle afferent signals modulate visual attention. *Investigative Ophthalmol Vis Sci.* 2012;53:7004-7009.
- Balslev D, Siebner HR, Paulson OB, Kassuba T. The cortical eye proprioceptive signal modulates neural activity in higher-order visual cortex as predicted by the variation in visual sensitivity. *Neuroimage.* 2012; 61:950-956.
- Beck H, Flynn K, Lindenberg KS, Schwarz H, Bradke F, Di Giovanni S, Knöll B. Serum Response Factor (SRF)-cofilin-actin signaling axis modulates mitochondrial dynamics. *Proc Natl Acad Sci U S A.* 2012 Sep 18;109(38):E2523-32
- Berg D. Is pre-motor diagnosis possible? - The European Experience. *Parkinsonism Relat Disord.* 2012 Jan;18 Suppl 1:S195-8.
- Berg D, Behnke S, Seppi K, Godau J, Lerche S, Mahlknecht P, Liepelt-Scarfone I, Pausch C, Schneider N, Gaenslen A, Brockmann K, Srulijes K, Huber H, Wurster I, Stockner H, Kiechl S, Willeit J, Gasperi A, Fassbender K, Gasser T, Poewe W. Enlarged hyperechogenic substantia nigra as a risk marker for Parkinson's disease. *Mov Disord.* 2012 Oct 31. [Epub ahead of print]
- Berg D, Marek K, Ross GW, Poewe W. Defining at-risk populations for Parkinson's disease: Lessons from ongoing studies. *Mov Disord.* 2012 Apr 15;27(5):656-65.
- Berg D, Poewe W. Can we define "pre-motor" Parkinson's disease? *Mov Disord.* 2012 Apr 15;27(5):595-6.
- Bittner T, Burgold S, Dorostkar MM, Fuhrmann M, Wegenast-Braun BM, Schmidt B, Kretzschmar H, Herms J. Amyloid plaque formation precedes dendritic spine loss. *Acta Neuropathol.* 2012;124:797-807.
- Bolmont T, Bouwens A, Pache C, Dimitrov M, Berclaz C, Villiger M, Wegenast-Braun BM, Lasser T, Fraering PC. Label-Free Imaging of Cerebral-Amyloidosis with Extended-Focus Optical Coherence Microscopy. *J Neurosci.* 2012; 32:14548-56.
- Borchers S, Himmelbach M. The recognition of everyday objects changes grasp scaling. *Vision Research.* 2012;67:8-13.
- Borchers S, Himmelbach M, Logothetis N, Karnath H-O. Direct electrical stimulation of human cortex – the gold standard for mapping brain functions? *Nat Rev Neurosci.* 2012; 13:63-70.

- Bösel J, Purrucker JC, Nowak F, Renzland J, Schiller P, Perez EB, **Poli S**, Brunn B, Hacke W, Steiner T (2012) Volatile isoflurane sedation in cerebrovascular intensive care patients using AnaConDa®: effects on cerebral oxygenation, circulation, and pressure. *Intensive care medicine* 38:1955-1964
- Bruckmann S, Hauk D, Roessner V, Resch F, Freitag CM, Kammer T, **Ziemann U**, Rothenberger A, Weisbrod M, Bender S. Cortical inhibition in attention deficit hyperactivity disorder: new insights from the electroencephalographic response to transcranial magnetic stimulation. *Brain* 2012; 135(Pt 7): 2215-30
- Brockmann K, Hilker R, Pilatus U, Baudrexel S, **Srulijes K**, Magerkurth J, Hauser AK, **Schulte C**, Csoti I, Merten CD, **Gasser T**, **Berg D**, Hattingen E. GBA-associated PD: Neurodegeneration, altered membrane metabolism, and lack of energy failure. *Neurology*. 2012 Jul 17;79(3):213-20.
- Brockmann K, Reimold M, Globas C, Hauser TK, Walter U, Machulla HJ, Rolfs A, **Schöls L**. PET and MRI reveal early evidence of neurodegeneration in spinocerebellar ataxia type 17. *J Nucl Med*. 2012 Jul;53(7):1074-80.
- Brosseron F, May C, Schoenebeck B, Tippler B, Woitalla D, Kauth M, Brockmann K, Meyer HE, **Berg D**, Bufo A, Marcus K. Stepwise isolation of human peripheral erythrocytes, T-lymphocytes and monocytes for blood cell proteomics. *Proteomics Clin Appl*. 2012 Oct;6(9-10):497-501
- Caggiano V, Fogassi L, Rizzolatti G, Casile A, **Giese MA**, **Thier P**. Mirror neurons encode the subjective value of an observed action. *Proc Natl Acad Sci USA*. 2012;109(29):11848-11853.
- Chiovetto E**, Patanè L, Pozzo T. Variant and invariant features characterizing natural and reverse whole-body pointing movements. *Exp Brain Res*. 2012;218:419-431.
- Chipchase L, Schabrun S, Cohen LG, Hodges P, Riddig MC, Rothwell JC, Taylor J, **Ziemann U**. A checklist for assessing the methodological quality of studies using transcranial magnetic stimulation to study the motor system: an international consensus study. *Clin Neurophysiol* 2012; 123 (9): 1698-1704
- Christ JB, **Fruhmann Berger M**, Riedl E, Prakash D, Csoti I, Molt W, **Gräber S**, Brockmann K, **Berg D**, Liepelt-Scarfone I. How precise are activities of daily living scales for the diagnosis of Parkinson's disease dementia? A pilot study. *Parkinsonism Relat Disord*. 2012 Dec 8. [Epub ahead of print]
- Clark CN, **Weber YG**, Lerche H, Warner TT. Paroxysmal exercise-induced dyskinesia of the hands. *Mov Disord* 2012;27:1579-80.
- Coelho T, **Maia LF**, Martins da Silva A, Waddington Cruz M, Plante-Bordeneuve V, Lozeron P, Suhr OB, Campistol JM, Conceicao IM, Schmidt HH, Trigo P, Kelly JW, Labaudiniere R, Chan J, Packman J, Wilson A, Grogan DR. Tafamidis for transthyretin familial amyloid polyneuropathy: a randomized, controlled trial. *Neurology*. 2012; 79:785-92.
- Dash S, Catz N, **Dicke PW**, **Thier P**. Encoding of smooth-pursuit eye movement initiation by a population of vermal purkinje cells. *Cereb Cortex*. 2012; 22(4):877-891.
- De Haan B**, Karnath H-O. Objections against the view of visual extinction as an attentional disengagement deficit: The interaction between spatial position and temporal modulation. *Cortex*. 2012;48:972-979.
- De Haan B**, Karnath H-O, Driver J. Mechanisms and anatomy of unilateral extinction after brain injury. *Neuropsychologia*. 2012;50:1045-1053.
- de Graaf KL, **Albert M**, Weissert R. Autoantigen conformation influences both B-and T-cell responses and encephalogenicity. *J Biol Chem* 2012; 287(21): 17206-13.

# ANNUAL REPORT

- Dihné M, Schmidt-Wilcke T, Focke NK, Weber, Y, Lerche H. New developments in epileptology. *Aktuelle Neurologie*, 2012;39:412-19.
- Dihné M, Hartung HP. Volume transmission-mediated encephalopathies: a possible new concept? *Arch Neurol*. 2012 Mar;69(3):315-21.
- Dietrich S, Hertrich I, Riedel A, Ackermann H. Brief report: Impaired differentiation of vegetative/affective and intentional nonverbal vocalizations in a subject with Asperger syndrome (AS). *Journal of Autism and Developmental Disorders* 2012;42:2219-2224
- Doehner W, von Haehling S, Suhr J, Ebner N, Schuster A, Nagel E, Melms A, Wurster T, Stellos K, Gawaz M, Bigalke B. Elevated plasma levels of neuropeptide proenkephalin a predict mortality and functional outcome in ischemic stroke. *J Am Coll Cardiol* 2012; 60(4): 346-54
- EPICURE Consortium, Leu C, de Kovel CG, Zara F, Striano P, Pezzella M, Robbiano A, Bianchi A, Bisulli F, Coppola A, Giallonardo AT, Beccaria F, Trenité DK, Lindhout D, Gaus V, Schmitz B, Janz D, Weber YG, Becker F, Lerche H, Kleefuß-Lie AA, Hallman K, Kunz WS, Elger CE, Muhle H, Stephani U, Möller RS, Hjalgrim H, Mullen S, Scheffer IE, Berkovic SF, Everett KV, Gardiner MR, Marini C, Guerrini R, Lehesjoki AE, Siren A, Nababout R, Baulac S, Leguern E, Serratosa JM, Rosenow F, Feucht M, Unterberger I, Covanius A, Suls A, Weckhuysen S, Kaneva R, Caglayan H, Turkdogan D, Baykan B, Bebek N, Ozbek U, Hempelmann A, Schulz H, Rüschendorf F, Trucks H, Nürnberg P, Avanzini G, Koeleman BP, Sander T. Genome-wide linkage meta-analysis identifies susceptibility loci at 2q34 and 13q31.3 for genetic generalized epilepsies. *Epilepsia*. 2012;53:308-318.
- EPICURE Consortium; EMINet Consortium, Steffens M, Leu C, Ruppert AK, Zara F, Striano P, Robbiano A, Capovilla G, Tinuper P, Gambardella A, Bianchi A, La Neve A, Cricciutti G, de Kovel CG, Kastelein-Nolst Trenité D, de Haan GJ, Lindhout D, Gaus V, Schmitz B, Janz D, Weber YG, Becker F, Lerche H, Steinhoff BJ, Kleefuß-Lie AA, Kunz WS, Surges R, Elger CE, Muhle H, von Spiczak S, Ostertag P, Helbig I, Stephani U, Möller RS, Hjalgrim H, Dibbens LM, Bellows S, Oliver K, Mullen S, Scheffer IE, Berkovic SF, Everett KV, Gardiner MR, Marini C, Guerrini R, Lehesjoki AE, Siren A, Guipponi M, Malafosse A, Thomas P, Nababout R, Baulac S, Leguern E, Guerrero R, Serratosa JM, Reif PS, Rosenow F, Mörzinger M, Feucht M, Zimprich F, Kapser C, Schankin CJ, Suls A, Smets K, De Jonghe P, Jordanova A, Caglayan H, Yapici Z, Yalcin DA, Baykan B, Bebek N, Ozbek U, Gieger C, Wichmann HE, Balschun T, Ellinghaus D, Franke A, Meesters C, Becker T, Wienker TF, Hempelmann A, Schulz H, Rüschendorf F, Leber M, Pauck SM, Trucks H, Toliat MR, Nürnberg P, Avanzini G, Koeleman BP, Sander T. Genome-wide association analysis of genetic generalized epilepsies implicates susceptibility loci at 1q43, 2p16.1, 2q22.3 and 17q21.32. *Hum Mol Genet*. 2012;21:5359-72.
- Feldmeyer D, Brecht M, Helmchen F, Petersen CCH, Poulet JFA, Staiger JF, Luhmann HJ, Schwarz C. Barrel Cortex Function. *Progress in Neurobiology*. 2012; doi:10.1016/j.pneurobio.2012.11.002. [Epub ahead of print]
- Fiesel, F. C., Weber, S. S., Supper, J., Zell, A., and Kahle, P. J. (2012) TDP-43 regulates global translational yield by splicing of exon junction complex component SKAR. *Nucleic Acids Res*. 40, 2668-2682
- Fleischer F, Christensen A, Caggiano V, Thier P, Giese MA. Neural theory for the perception of causal actions. *Psychol Res*. 2012;76:476-493.
- Floriddia EM, Rathore KI, Tedeschi A, Quadrato G, Wuttke A, Lueckmann JM, Kigerl KA, Popovich PG, Di Giovanni S. p53 Regulates the neuronal intrinsic and extrinsic responses affecting the recovery of motor function following spinal cord injury. *J Neurosci*. 2012 Oct 3;32(40):13956-70.
- Föller M, Hermann A, Gu S, Alesutan I, Qadri SM, Borst O, Schmidt EM, Schiele F, Müller Vom Hagen J, Saft C, Schöls L, Lerche H, Stournaras C, Storch A, Lang F. Chorein-sensitive polymerization of cortical actin and suicidal cell death in chorea-acanthocytosis. *FASEB J*. 2012 Jan 18; 26:1526-34.

- Füll Y, Seeböhm G, Lerche H, Maljevic S. A conserved threonine in the S1-S2 loop of KV7.2 and KV7.3 channels regulates voltage-dependent activation. *Pflügers Arch.* 2012 Dec 28. [Epub ahead of print]
- Funke C, Schneider SA, Berg D, Kell DB. Genetics and iron in the systems biology of Parkinson's disease and some related disorders. *Neurochem Int.* 2012 Dec 6. [Epub ahead of print]
- Gerlach M, Maetzler W, Broich K, Hampel H, Rems L, Reum T, Riederer P, Stöffler A, Streffer J, Berg D. Biomarker candidates of neurodegeneration in Parkinson's disease for the evaluation of disease-modifying therapeutics. *J Neural Transm.* 2012 Jan;119(1):39-52
- Gispert S, Kurz A, Waibel S, Bauer P, Liepelt I, Geisen C, Gitler AD, Becker T, Weber M, Berg D, Andersen PM, Krüger R, Riess O, Ludolph AC, Auburger G. The modulation of Amyotrophic Lateral Sclerosis risk by Ataxin-2 intermediate polyglutamine expansions is a specific effect. *Neurobiol Dis.* 2012 Jan;45(1):356-61
- Gregersen PK, Kosoy R, Lee AT, Lamb J, Sussman J, McKee D, Simpfendorfer KR, Pirskanen-Matell R, Piehl F, Pan-Hammarstrom Q, Verschueren JJ, Titulaer MJ, Niks EH, Marx A, Ströbel P, Tackenberg B, Pütz M, Maniaol A, Elsais A, Tallaksen C, Harbo HF, Lie BA, Raychaudhuri S, de Bakker PI, Melms A, Garchon HJ, Willcox N, Hammarstrom L, Seldin MF. Risk for myasthenia gravis maps to a (151) Pro Ala change in TNIP1 and to human leukocyte antigen-B\*08. *Ann Neurol.* 2012 Jul 16. doi: 10.1002/ana.23691
- Gröger A, Berg D. Does structural neuroimaging reveal a disturbance of iron metabolism in Parkinson's disease? Implications from MRI and TCS studies. *J Neural Transm.* 2012 Dec;119(12):1523-8
- Hamaguchi T, Eisele YS, Varvel NH, Lamb BT, Walker LC, Jucker M. The presence of A seeds, and not age per se, is critical to the initiation of A deposition in the brain. *Acta Neuropathol.* 2012; 123:31-7.
- Hargus G, Cui YF, Dihné M, Bernreuther B and Schachner M. In vitro generation of three-dimensional substrate-adherent embryonic stem cell-derived neural aggregates for application in animal models of neurological disorders *Current Protocols in Stem Cell Biology* 2012 May; Chapter 2:Unit 2D.11.
- Hasenbach K, Wiehr S, Herrmann C, Mannheim J, Cay F, von Kurthy G, Bolmont T, Grathwohl SA, Weller M, Lengerke C, Pichler BJ, Tabatabai G. Monitoring the glioma tropism of bone marrow-derived progenitor cells by 2-photonlaser scanning microscopy and positron emission tomography. *Neuro-Oncology.* 2012; 14:471-81.
- Hefendehl JK, Milford D, Eicke D, Wegenast-Braun BM, Calhoun ME, Grathwohl SA, Jucker M, Liebig C. Repeatable target localization for long-term in vivo imaging of mice with 2-photon microscopy. *J Neurosci Meth.* 2012; 205:357-63.
- Helfrich C, Pierau SS, Freitag CM, Roeper J, Ziemann U, Bender S. Monitoring cortical excitability during repetitive Transcranial Magnetic Stimulation in Children with ADHD: a single-blind, sham-controlled TMS-EEG study. *Plos One* 2012; 7(11): e50073.
- Hertrich I, Dietrich S, Trouvain J, Moos A, Ackermann H. Magnetic brain activity phase-locked to the envelope, the syllable onsets, and the fundamental frequency of a perceived speech signal. *Psychophysiology* 2012;49:322-334
- Hertrich I, Dietrich S, Ackermann H. Tracking the speech signal: Time-locked MEG signals during perception of ultra-fast and moderately fast speech in blind and in sighted listeners. *Brain and Language* 2012 Nov 25 [Epub ahead of print]
- Himmelbach M, Boehme R, Karnath H-O. Twenty years later: a second look on DF's motor behaviour. *Neuropsychologia.* 2012;50(1):139-144.

# ANNUAL REPORT

- Holmans P, Moskvina V, Jones L, **Sharma M**; The International Parkinson's Disease Genomics Consortium (IPDGC), ... Williams NM. A pathway-based analysis provides additional support for an immune-related genetic susceptibility to Parkinson's disease. *Hum Mol Genet*. 2012 Dec 13. [Epub ahead of print]
- Holzer FJ, Rossetti AO, Heritier-Barras AC, Zumsteg D, Roebling R, Huber R, **Lerche H**, Kiphuth IC, Bardutzky J, Bien CG, Tröger M, Schoch G, Prüss H, Seck M. Antibody-mediated status epilepticus: a retrospective multicenter survey. *Eur Neurol*. 2012;68:310-7.
- Höring, E., Harter, P.N., **Seznec, J.**, Schittenhelm, J., Bühring, H.J., Bhattacharyya, S., Hattingen, E., Zachskorn, C., Mittelbronn, M., **Naumann, U.** The "go or grow" potential of gliomas is linked to the neuropeptide processing enzyme carboxypeptidase E and mediated by metabolic stress. *Acta Neuropathologica* 2012; 124(1):83-97
- Huberle E, **Karnath H-O**. The role of temporo-parietal junction (TPJ) in global Gestalt perception. *Brain Structure & Function*. 2012;217(3):735-746.
- Huberle E, Rupek P, Lappe M, **Karnath H-O**. Perception of biological motion in visual agnosia. *Frontiers in Behavioral Neuroscience*. 2012; 6:56.
- Hu X, **Ackermann H**, Martin JA, Erb M, Winkler S, Reiterer S. Language aptitude for pronunciation in advanced second language (L2) learners: Behavioural predictors and neural substrates. *Brain and Language* 2012 Dec 26 [Epub ahead of print]
- Ilg W, **Schatton C**, Giese MA, Schöls L, Synofzik M. Video game-based coordinative training improves ataxia in children with degenerative ataxia. *Neurology*. 2012;79(20):2056-2060.
- Jantzen S, Arendt G, Griese M, Dihné M. Late-stage Neurosyphilis presenting with severe neuropsychiatric deficits - diagnosis, therapy and course of three patients. *J Neurol*. 2012 Apr;259(4):720-8.
- Jarius S, Ruprecht K, Wildemann B, Kuempfel T, Ringelstein M, Geis C, Kleiter I, Kleinschmitz C, Berthele A, Brettschneider J, Hellwig K, Hemmer B, Linker RA, Lauda F, Mayer CA, Tumani H, **Melms A**, Trebst C, Stangel M, Marziniak M, Hoffmann F, Schippling S, Faiss JH, Neuhaus O, Ettrich B, Zentner C, Guthke K, Hofstadt-van Oy U, Reuss R, Pellkofer H, **Ziemann U**, Kern P, Wandinger KP, Then Bergh F, Boettcher T, Langel S, Liebetrau M, Rommer PS, Niehaus S, Münch C, Winkelmann A, Zettl UK, Metz I, Veauthier C, Sieb JP, Wilke C, Hartung HP, Aktas O, Paul F. Neuromyelitis optica: A multicentre study of 175 patients. *J Neuroinflammation* 2012; 9:14
- Karnath H-O**, Rennig J, Johannsen L, Rorden C. Reply: 'The anatomy underlying acute versus chronic spatial neglect' also depends on clinical tests. *Brain*. 2012;135:e208.
- Karnath H-O**, Rorden C. The anatomy of spatial neglect. *Neuropsychologia*. 2012;50(6):1010-1017.
- Keller MF, Saad M, **Bras J**, ..., Nalls MA; International Parkinson's Disease Genomics Consortium (IPDGC); Wellcome Trust Case Control Consortium 2 (WTCCC2). Using genome-wide complex trait analysis to quantify 'missing heritability' in Parkinson's disease. *Hum Mol Genet*. 2012 Nov 15;21(22):4996-5009
- Kleiter I, Hellwig K, Berthele A, Kümpfel T, Linker RA, Hartung HP, Paul F, Aktas O; Neuromyelitis Optica Study Group. *Arch Neurol* 2012; 69(2):239-45
- Kötter I, Xenitidis T, Fierlbeck G, Schanz S, **Melms A**, Horger M, Ernemann U, Deuter C. [Behcet's disease]. *Z Rheumatol*. 2012; 71(8):685-96
- Körtvelyessy P, **Lerche H**, Weber YG. FIRES and NORSE are distinct entities. *Epilepsia* 2012;53:1276.
- Kötter I, Xenitidis T, Fierlbeck G, Schanz S, **Melms A**, Horger M, Ernemann U, Deuter C. [Extraocular manifestations of Behcet's disease]. *Ophthalmologe* 2012; 109(6):548-57

- Lam JM, Wächter T, Globas C, Karnath H-O, Luft AR. Predictive value and reward in implicit classification learning. *Human Brain Mapping*. doi:10.1002/hbm.21431. [Epub ahead of print]
- Laske C, Schmohl M, Leyhe T, Stransky E, Maetzler W, Berg D, Fallgatter AJ, Joos T, Dietzsch J. Immune Profiling in Blood Identifies sTNF-R1 Performing Comparably Well as Biomarker Panels for Classification of Alzheimer's Disease Patients. *J Alzheimers Dis*. 2012 Dec 3. [Epub ahead of print]
- Laske C. Alzheimer disease: Blood-based biomarkers in AD - a silver lining on the horizon. *Nat Rev Neurol*. 2012; 8:541-542.
- Laske C. Clinical and biomarker changes in Alzheimer's disease. *New Engl J Med*. 2012; 367:2050.
- Lemke JR, Riesch E, Scheurenbrand T, Schubach T, Schubach M, Wilhelm C, Steiner I, Hansen J, Courage C, Gallati S, Bürki S, Strozzi S, Goeggel Simonetti B, Grunt S, Steinlin M, Alber M, Wolff M, Klopstock T, Prött EC, Lorenz R, Spaich C, Rona S, Lakshminarasimha M, Kröll J, Dorn T, Krämer G, Synofzik M, Becker F, Weber YG, Lerche H, Böhm D, Biskup S. Targeted Next Generation Sequencing as a Diagnostic Tool in Epileptic Disorders. *Epilepsia* 2012;53:1387-98.
- Lidzba K, Staudt M, Zieske F, Schwilling E, Ackermann H. Prestroke/poststroke fMRI in aphasia: Perilesional hemodynamic activation and language recovery. *Neurology* 2012;78:289-291
- Liepelt-Scarfone I, Jamour M, Maetzler W. Co-occurrence of parkinsonism and dementia in clinical practice: relevant differential diagnoses. *Z Gerontol Geriatr*. 2012 Jan;45(1):23-33.
- Liepelt-Scarfone I, Gräber S, Fruhmann Berger M, Feseker A, Baysal G, Csoti I, Godau J, Gaenslen A, Huber H, Srulijes K, Brockmann K, Berg D. Cognitive Profiles in Parkinson's Disease and Their Relation to Dementia: A Data-Driven Approach. *Int J Alzheimers Dis*. 2012;2012:910757
- Lill CM, Roehr JT, ..., Berg D, ..., Lehrach H, Ioannidis JP, Bertram L. Comprehensive Research Synopsis and Systematic Meta-Analyses in Parkinson's Disease Genetics: The PDGene Database. *PLoS Genet*. 2012 Mar;8(3):e1002548.
- Linzenbold W, Himmelbach M. Signals from the deep: reach-related activity in the human superior colliculus. *J Neurosci*. 2012;32:13881-13888. Liu C, Roder C, Schulte C, Kasuya H, Akagawa H, Nishizawa T, Yoneyama T, Okada Y, Khan N, Tagagiba M, Berg D, Krischek B. Analysis of TGFB1 in European and Japanese Moyamoya disease patients. *Eur J Med Genet*. 2012 Oct;55(10):531-4
- Lu M-K, Tsai C-H, Ziemann U. Cerebellum to motor cortex paired associative stimulation induces bidirectional STDP-like plasticity in human motor cortex. *Frontiers Hum Neurosci* 2012; 6:260
- Maetzler W, Tian Y, Baur SM, Gauger T, Odoj B, Schmid B, Schulte C, Deuschle C, Heck S, Apel A, Melms A, Gasser T, Berg D. Serum and Cerebrospinal Fluid Levels of Transthyretin in Lewy Body Disorders with and without Dementia. *PLoS One*. 2012; 7(10):e48042
- Maetzler W, Langkamp M, Lerche S, Godau J, Brockmann K, Gaenslen A, Huber H, Wurster I, Niebler R, Eschweiler GW, Berg D. Lowered Serum Amyloid-1-42 Autoantibodies in Individuals with Lifetime Depression. *J Alzheimers Dis*. 2012 Jan 1;32(1):95-100.
- Maetzler W, Mancini M, Liepelt-Scarfone I, Müller K, Becker C, van Lummen RC, Ainsworth E, Hobert M, Streffer J, Berg D, Chiari L. Impaired Trunk Stability in Individuals at High Risk for Parkinson's Disease. *PLoS One*. 2012 Mar;7(3):e32240
- Maetzler W, Tian Y, Baur SM, Gauger T, Odoj B, Schmid B, Schulte C, Deuschle C, Heck S, Apel A, Melms A, Gasser T, Berg D. Serum and Cerebrospinal Fluid Levels of Transthyretin in Lewy Body Disorders with and without Dementia. *PLoS One*. 2012;7(10):e48042
- Magnus T, Melms A, Kötter I, Holle JU. [Neurological manifestations of vasculitis and primary central nervous system vasculitis]. *Z Rheumatol*. 2012; 71(7):551-63

# ANNUAL REPORT

- Mathiak KA, Zvyagintsev M, **Ackermann H**, Mathiak K. Lateralization of amygdala activation in fMRI may depend on phase-encoding polarity. *MAGMA* 2012;25:177-182
- Mittag F, Büchel F, Saad M, ..., **Gasser T, Sharma M**; International Parkinson's Disease Genomics Consortium. Use of support vector machines for disease risk prediction in genome-wide association studies: concerns and opportunities. *Hum Mutat.* 2012 Dec;33(12):1708-18
- Murakami T, Müller-Dahlhaus F, Lu M-K, **Ziemann U**. Homeostatic metaplasticity of corticospinal excitatory and intracortical inhibitory neural circuits in human motor cortex. *J Physiol* 2012; 590(Pt 22): 5765-5781
- Papageorgiou E, Hardiess G, Wiethölter H, **Ackermann H**, Dietz K, Mallot HA, Schiefer U. The neural correlates of impaired collision avoidance in hemianopic patients. *Acta Ophthalmologica* 2012;90:e198-205
- Papageorgiou E, Hardiess G, **Ackermann H**, Wiethölter H, Dietz K, Mallot HA, Schiefer U. Collision avoidance in persons with homonymous visual field defects under virtual reality conditions. *Vision Research* 2012;52:20-30
- Pevzner A, Schoser B, Peters K, Cosma NC, Karakatsani A, Schalke B, **Melms A**, Kröger S. Anti-LRP4 autoantibodies in AChR- and MuSK-antibody-negative myasthenia gravis. *J Neurol* 2012; 259(3):427-435.
- Podlech, O.**, Harter, P.N., Mittelbronn, M., Pöschel, S., **Naumann, U**. Fermented mistletoe extract as a multimodal antitumoral agent in gliomas. *Evid-Based Compl* doi:10.1155/2012/501796
- Quadrato G**, Benevento M, Alber S, Jacob C, **Floriddia EM**, Nguyen T, Elnaggar MY, Pedroarena CM, Molken- tin JD, **Di Giovanni S**. Nuclear factor of activated T cells (NFATc4) is required for BDNF-dependent survival of adult-born neurons and spatial memory formation in the hippocampus. *Proc Natl Acad Sci U S A*. 2012 Jun 5;109(23):E1499-508.
- Rannikko, E. H.**, Vesterager, L. B., Shaik, J. H. A., **Weber, S. S.**, Cornejo Castro, E. M., Fog, K., Jensen, P. H., and **Kahle, P. J.** (2012) Loss of DJ-1 protein stability and cytoprotective function by Parkinson's disease-associated proline-158 deletion. *J. Neurochem.*, Epub ahead of print
- Ritzinger B, Huberle E, **Karnath H-O**. Bilateral theta-burst TMS to influence global Gestalt perception. *PLoS ONE*. 2012;7:e47820:1-7.
- Robert, G., Puissant, A., Dufies, M., Marchetti, S., Jacquel, A., Cluzeau, T., Colosetti, P., Belhacene, N., **Kahle, P.**, Alves Da Costa, C. A., Luciano, F., Checler, F., and Auberger, P. (2012) The caspase 6 derived N-terminal fragment of DJ-1 promotes apoptosis via increased ROS production. *Cell Death Differ.* 19, 1769-1778
- Rorden C, Bonilha L, Fridriksson J, Bender B, **Karnath H-O**. Age-specific CT and MRI templates for spatial normalization. *Neuroimage*. 2012;61:957-965.
- Rorden C, Hjaltason H, Fillmore P, Fridriksson J, Kjartansson O, Magnusdottir S, **Karnath H-O**. Ilocentric neglect strongly associated with egocentric neglect. *Neuropsychologia*. 2012;50:1151-1157.
- Rosen RF, Fritz JJ, Dooyema J, Cintron AF, Hamaguchi T, Lah JJ, Levine H 3rd, **Jucker M**, Walker LC (2012) Exogenous seeding of cerebral-amyloid deposition in APP-transgenic rats. *J Neurochem*. 2012; 120:660-6.
- Rosenow F, Schade-Brittinger C, Burchardi N, Bauer S, Klein KM, **Weber YG**, **Lerche H**, Evers S, Kovac S, Hallmeyer-Elgner S, Winkler G, Springub J, Niedhammer M, Roth E, Eisensehr I, Berrouschot J, Arnold S, Schröder M, Beige A, Oertel WH, Strzelczyk A, Haag A, Reif PS, Hamer HM; for the LaLiMo Study Group. The LaLiMo Trial: lamotrigine compared with levetiracetam in the initial 26 weeks of monotherapy for focal and generalised epilepsy--an open-label, prospective, randomised controlled multicenter study. *J Neurol Neurosurg Psychiatry* 2012;83:1093-1098.

- Sathe K, Maetzler W, Lang JD, Mounsey RB, Fleckenstein C, Martin HL, Schulte C, Mustafa S, Synofzik M, Vukovic Z, Itohara S, Berg D, Teismann P. S100B is increased in Parkinson's disease and ablation protects against MPTP-induced toxicity through the RAGE and TNF-pathway. *Brain*. 2012 Nov;135(Pt 11):3336-47.
- Sartorius, T., Lutz, S. Z., Hoene, M., Waak, J., Peter, A., Weigert, C., Rammensee, H.-G., Kahle, P. J., Häring, H.-U., and Hennige, A. M. (2012) Toll-like receptors 2 and 4 impair insulin-mediated brain activity by interleukin-6 and osteopontin and alter sleep architecture. *FASEB J.* 26, 1799-1809
- Saur R, Maier C, Milian M, Riedel E, Berg D, Liepelt-Scarfone I, Leyhe T. Clock Test Deficits related to the Global Cognitive State in Alzheimer's and Parkinson's Disease. *Dement Geriatr Cogn Disorders* 2012; 33:59-72
- Schell, H., Boden, C., Maia Chagas, A., and Kahle, P. J. (2012) Impaired c-Fos and polo-like kinase 2 induction in the limbic system of fear-conditioned  $\alpha$ -synuclein transgenic mice. *PLoS ONE* 7, e50245
- Schenk T, Karnath H-O. Neglect and attention: Current trends and questions. *Neuropsychologia*. 2012;50:1007-1009.
- Schmid SP, Schleicher ED, Cegan A, Deuschele C, Baur S, Hauser AK, Synofzik M, Srulijes K, Brockmann K, Berg D, Maetzler W. Cerebrospinal fluid fatty acids in glucocerebrosidase-associated Parkinson's disease. *Mov Disord*. 2012 Feb;27(2):288-93.
- Schubert S, Paravidino R, Becker F, Berger A, Bebek N, Bianchi A, Brockmann K, Capovilla G, Dalla Bernadina B, Fukuyama Y, Hoffmann GF, Jurkat-Rott K, Antonnen AK, Kurlemann G, Lehesjoki AE, Lehmann-Horn F, Mastrangelo M, Mause U, Müller S, Neubauer B, Püst B, Rating D, Robbiani A, Ruf S, Schroeder C, Seidel A, Specchio N, Stephani U, Striano P, Teichler J, Turkdogan D, Vigevano F, Viri M, Bauer P, Zara F, Lerche H, Weber YG. PRRT2mutations are the major cause of benign familial infantile seizures (BFIS). *Hum Mutat* 2012;33:1439-43.
- Schwarz C, Ferrea S, Quasthoff K, Walter J, Görg B, Häussinger D, Schnitzler A, Hartung H, Dihné M. Ammonium chloride influences in vitro-neuronal network activity. *Exp Neurol*. 2012 Mar 7.
- Schwerdtfeger K, MautesA, BernreutherC, CuiY, ManvilleJ, DihnéM, SchachnerM. Stress-resistant neural stem cells positively influence regional energy metabolism after spinal cord injury in mice. *J Mol Neurosci*. 2012 Feb;46(2):401-9.
- Schreitmüller B, Leyhe T, Stransky E, Kohler N, Laske C. Elevated angiopoietin-1 serum levels in patients with Alzheimer's disease. *Int J Alzheimers Dis*. 2012.
- Sharma M, Ioannidis ..., Gasser T, Maraganore D, Krüger R; GEO-PD Consortium. Large-scale replication and heterogeneity in Parkinson disease genetic loci. *Neurology*. 2012 Aug 14;79(7):659-67.
- Simon-Sánchez J, Kilar斯基 LL, Nalls MA, Martinez M, Schulte C, Holmans P, International Parkinson's Disease Genomics Consortium, Wellcome Trust Case Control Consortium, Gasser T, Hardy J, Singleton AB, Wood NW, Alexis Brice A, Heutink P, Williams N, Morris HR. Cooperative Genome-Wide Analysis Shows Increased Homozygosity in Early Onset Parkinson's Disease. *PLoS One*. 2012;7(3):e28787
- Srulijes K, Reimold M, Liscic RM, Bauer S, Dietzel E, Liepelt-Scarfone I, Berg D, Maetzler W. Fluorodeoxyglucose positron emission tomography in Richardson's syndrome and progressive supranuclear palsy-parkinsonism. *Mov Disord*. 2012 Jan;27(1):151-5.
- Stoeckle C, Quecke P, Rückrich T, Burster T, Reich M, Weber E, Kalbacher H, Driessen C, Melms A, Tolosa E. Cathepsin S dominates autoantigen processing in human thymic dendritic cells. *J Autoimmun* 2012; 38(4):332-43.

# ANNUAL REPORT

- Striano P\*, Weber YG\*, Toliat MR, Schubert , Leu C, Chaimana R, Baulac S, Guerrero R, LeGuern G, Lehesjoki AE, Polvi A, Robbiano A, Serratosa JM, Epicure Consortium, Guerrini R, Nürnberg P, Sander T, Zara F, Lerche H, Marini C. GLUT1-mutations are a rare cause of familial idiopathic generalized epilepsy. *Neurology* 2012;78:557-62. \*contributed equally.
- Suchan J, Rorden C, Karnath H-O. Neglect severity after left and right brain damage. *Neuropsychologia*. 2012;50:1136-1141.
- Sultan F, Augath M, Hamodeh S, Murayama Y, Oeltermann A, Rauch A, Thier P. Unravelling cerebellar pathways with high temporal precision targeting motor and extensive sensory and parietal networks. *Nat Commun.* 2012;3:924 (DOI: 10.1034/j.17495932.793462732) Synofzik M, Srulijes K, Godau J, Berg D, Schöls L. Characterizing POLG Ataxia: Clinics, Electrophysiology and Imaging. *Cerebellum*. 2012 Dec;11(4):1002-11
- Synofzik M, Schicks J, Srulijes K, Schulte C, Schiele F, Berg D, Schöls L. POLG and PEO1 (Twinkle) mutations are infrequent in PSP-like atypical parkinsonism: a preliminary screening study. *J Neurol.* 2012 Oct;259(10):2232-3
- Synofzik M, Srulijes K, Godau J, Berg D, Schöls L. Characterizing POLG Ataxia: Clinics, Electrophysiology and Imaging. *Cerebellum*. 2012 Dec;11(4):1002-11
- Synofzik M, Maetzler W, Grehl T, Prudlo J, Müller vom Hagen J, Haack T, Rebassoo P, Munz M, Schöls L, Biskup S. Screening in ALS and FTD patients reveals 3 novel UBQLN2 mutations outside the PXX domain and a pure FTD phenotype. *Neurobiology of Aging*. 2012;33:2949.e13–2949.e17. #
- Thomas C, Kveraga K, Huberle E, Karnath H-O, Bar M. Enabling global processing in simultagnosia by psychophysical biasing of visual pathways. *Brain*. 2012;135:1578-1585.
- Tziridis K, Dicke PW, Thier P. Pontine reference frames for the sensory guidance of movement. *Cerebral Cortex*. 2012;22(2):345-362.
- Varrel NH, Grathwohl SA, Baumann F, Liebig C, Bosch A, Brawek B, Thal DR, Charo IF, Heppner DL, Aguzzi A, Garaschuk O, Ransohoff RM, Jucker M. Microglial repopulation model reveals a robust homeostatic process for replacing CNS myeloid cells. *Proc Natl Acad Sci USA*. 2012; 109:18150-5.
- Vlachos A, Müller-Dahlhaus F, Rosskopp J, Lenz M, Ziemann U, Deller T. Repetitive magnetic stimulation induces functional and structural plasticity of excitatory postsynapses in mouse organotypic hippocampal slice cultures. *J Neurosci* 2012; 32: 17514-17523
- Wachter B, Schürger S, Schmid A, Gröger A, Sadler R, Speidel A, Rolinger J, Pichler BJ, Berg D, Wagner HJ, von Ameln-Mayerhofer A, Küppers E. 6-Hydroxydopamine leads to T2 hyperintensity, decreased claudin-3 immunoreactivity and altered aquaporin 4 expression in the striatum. *Behav Brain Res.* 2012 Apr 10;232(1):148-158
- Walter J, Dihné M. Species-dependent differences of embryonic stem cell-derived neural stem cells after Interferon gamma treatment. *Front Cell Neurosci.* 2012;6:52.
- Walter J, Hartung HP, Dihné M. Interferon gamma and sonic hedgehog signaling are required to dysregulate murine neural stem / precursor cells. *PLOSone*. 2012;7(8):e43338.
- Walter J, Hausmann S, Drepper T, Puls M, Eggert T, Dihné M. Flavin mononucleotide-based fluorescent proteins function in mammalian cells without oxygen requirement. *PLOSone*. 2012;7(9):e43921.
- Wang Y, Shi M, Chung KA, Zabetian CP, Leverenz JB, Berg D, Srulijes K, Trojanowski JQ, Lee VM, Siderowf AD, Hurtig H, Litvan I, Schiess MC, Peskind ER, Masuda M, Hasegawa M, Lin X, Pan C, Galasko D, Goldstein DS, Jensen PH, Yang H, Cain KC, Zhang J. Phosphorylated-Synuclein in Parkinson's Disease. *Sci Transl Med.* 2012 Feb 15;4(121):121ra20.

- Wegenast-Braun BM, Skodras A, Bayraktar G, Mahler J, Fritschi SK, Klingstedt T, Mason JJ, Hammarstrom P, Nilsson KP, Liebig C, Jucker M.** Spectral discrimination of cerebral amyloid lesions after peripheral application of luminescent conjugated oligothiophenes. *Am J Pathol*. 2012;181:1953-60.
- Weiss D, Brockmann K, Srulijes K, Meisner C, Klotz R, Reinbold S, Hauser AK, Schulte C, Berg D, Gasser T, Plewnia C, Gharabaghi A, Breit S, Wächter T, Krüger R.** Long-term follow-up of subthalamic nucleus stimulation in glucocerebrosidase-associated Parkinson's disease. *J Neurol*. 2012 Sep;259(9):1970-2.
- Wilke C, Synofzik M, Lindner A.** The valence of action outcomes modulates the perception of one's actions. *Consciousness and Cognition*. 2012;21:18-29.
- Wurster T, Stellos K, Geisler T, Seizer P, Andia ME, Schuster A, May AE, Melms A, Gawaz M, Bigalke B.** Expression of stromal-cell-derived factor-1 (SDF-1): a predictor of ischaemic stroke? *Eur J Neurol* 2012; 19(3):395-401.
- Quadrato G, Benevento M, Alber S, Jacob C, Floriddia EM, Nguyen T, Elnaggar MY, Pedroarena CM, Molken- tin JD, Di Giovanni S.** Nuclear factor of activated T cells (NFATc4) is required for BDNF-dependent survival of adult-born neurons and spatial memory formation in the hippocampus. *Proc Natl Acad Sci USA*. 2012;109:E1499-1508.
- Zopf R, Klose U, Karnath H-O.** Evaluation of methods for detecting perfusion abnormalities after stroke in dysfunctional brain regions. *Brain Structure & Function*. 2012;217:667-675.

## REVIEWS

- Adame MR, Al-Jawad A, Romanovas M, Hobert MA, Maetzler W, Moller K, Manoli Y.** TUG Test Instrumentation for Parkinson's disease patients using Inertial Sensors and Dynamic Time Warping. *Biomed Tech (Berl)*. 2012 Aug 30.
- Berg D, Godau J, Seppi K, Behnke S, Liepelt-Scarfone I, Lerche S, Stockner H, Gaenslen A, Mahlknecht P, Huber H, Srulijes K, Klenk J, Fassbender K, Maetzler W, Poewe W.** The PRIPS study: screening battery for subjects at risk for Parkinson's disease. *Eur J Neurol*. 2012 Aug 1.
- Deleidi M, Maetzler W.** Protein clearance mechanisms of alpha-synuclein and amyloid-Beta in Lewy body disorders. *Int J Alzheimers Dis*. 2012;391438.
- Dihne M, Schmidt-Wilcke T, Focke NK, Weber YG, Lerche H.** Neues aus der Epileptologie. *Aktuelle Neurologie* 2012;8:412-419.
- Eisenberg D, Jucker M.** The amyloid state of proteins in human diseases. *Cell*. 2012;148:1188-203.
- Ernemann U, Bender B, Melms A, Brechtel K, Kobba J, Balletshofer B.** Current concepts of the interventional treatment of proximal supraaortic vessel stenosis. *Vasa* 2012; 41(5):313-8
- Ferreira LM, Floriddia EM, Quadrato G, Di Giovanni S.** Neural regeneration: lessons from regenerating and non-regenerating systems. *Mol Neurobiol*. 2012 Oct;46(2):227-41
- Heinzel S, Metzger FG, Ehlis AC, Korell R, Alboji A, Haeussinger FB, Hagen K, Maetzler W, Eschweiler GW, Berg D, Fallgatter AJ.** Aging-related cortical reorganization of verbal fluency processing: a functional near-infrared spectroscopy study. *Neurobiol Aging*. 2012 Jul 5.
- Jamour M, Becker C, Synofzik M, Maetzler W.** [Gait changes as an early indicator of dementia]. *Z Gerontol Geratr*. 2012 Jan;45(1):40-4.
- Jarius S, Paul F, Franciotta D, de Seze J, Münch C, Salvetti M, Ruprecht K, Liebetrau M, Wandinger KP, Akman-Demir G, Melms A, Kristoferitsch W, Wildemann B.** Neuromyelitis optica spectrum disorders in patients with myasthenia gravis: ten new aquaporin-4 antibody positive cases and a review of the literature. *Mult Scler* 2012;18(8):1135-43

# ANNUAL REPORT

- Lerche H, Shah M, Beck H, Noebels JL, Johnston D, Vincent A.** Ion channels in genetic and acquired forms of epilepsy. *J Physiol.* 2012 Dec 10. [Epub ahead of print] PMID: 23090947
- Liepelt-Scarfone I, Jamour M, Maetzler W.** Co-occurrence of parkinsonism and dementia in clinical practice: relevant differential diagnoses. *Z Gerontol Geriatr.* 2012 Jan;45(1):23-33.
- Maetzler W, Tian Y, Baur SM, Gauger T, Odoj B, Schmid B, Schulte C, Deuschle C, Heck S, Apel A, Melms A, Gasser T, Berg D.** Serum and Cerebrospinal Fluid Levels of Transthyretin in Lewy Body Disorders with and without Dementia. *PLoS One.* 2012 7(10):e48042.
- Maetzler W, Klenk J, Becker C, Zscheile J, Gabor KS, Lindemann U.** Longitudinal changes of nerve conduction velocity, distal motor latency, compound motor action potential duration, and skin temperature during prolonged exposure to cold in a climate chamber. *Int J Neurosci.* 2012 Sep;122(9):528-31.
- Maetzler W, Mancini M, Liepelt-Scarfone I, Muller K, Becker C, van Lummel RC, Ainsworth E, Hobert M, Stroffer J, Berg D, Chiari L.** Impaired trunk stability in individuals at high risk for Parkinson's disease. *PLoS One.* 2012 7(3):e32240.
- Maetzler W, Hausdorff JM.** Motor signs in the prodromal phase of Parkinson's disease. *Mov Disord.* 2012 Apr 15;27(5):627-33.
- Maetzler W, Langkamp M, Lerche S, Godau J, Brockmann K, Gaenslen A, Huber H, Wurster I, Niebler R, Eschweiler GW, Berg D.** Lowered Serum Amyloid-beta1-42 Autoantibodies in Individuals with Lifetime Depression. *J Alzheimers Dis.* 2012 Jan 1;32(1):95-100.
- Maljevic S, Lerche H.** Potassium channels: a review of broadening therapeutic possibilities for neurological diseases. *J Neurol.* 2012 Nov 11. [Epub ahead of print] PMID: 23142946
- Nitsche MN, Müller-Dahlhaus F, Paulus W, Ziemann U.** The pharmacology of neuroplasticity induced by non-invasive brain stimulation: building models for the clinical use of CNS active drugs. *J Physiol* 2012; 590(Pt 19):4641-4662
- Orhan G, Wuttke TV, Nies AT, Schwab M, Lerche H.** Retigabine/Ezogabine, a KCNQ/K(V)7 channel opener: pharmacological and clinical data. *Expert Opin Pharmacother.* 2012;13:1807-16.
- Quadrato G, Di Giovanni S.** Waking up the sleepers: shared transcriptional pathways in axonal regeneration and neurogenesis. *Cell Mol Life Sci.* 2013 Mar;70(6):993-1007
- Quadrato G, Di Giovanni S.** Gatekeeper between quiescence and differentiation: p53 in axonal outgrowth and neurogenesis. *Int Rev Neurobiol.* 2012;105:71-89
- Rennig J, Karnath H-O.** Rechtshemisphärischer Schlagnfall: Verbessert ein Dopaminagonist die Neglect-Symptomatik? *InFo Neurologie & Psychiatrie* 2012;14:44
- Sathe K\*, Maetzler W\*, Lang JD, Mounsey RB, Fleckenstein C, Martin HL, Schulte C, Mustafa S, Synofzik M, Vukovic Z, Itohara S, Berg D, Teismann P.** S100B is increased in Parkinson's disease and ablation protects against MPTP-induced toxicity via the RAGE and TNF-a pathway. *Brain.* 2012, accepted. \*equal contribution **Synofzik M, Maetzler W, Grehl T, Prudlo J, Vom Hagen JM, Haack T, Rebassoo P, Munz M, Schöls L, Biskup S.** Screening in ALS and FTD patients reveals 3 novel UBQLN2 mutations outside the PXX domain and a pure FTD phenotype. *Neurobiol Aging.* 2012 Dec;33(12):2949 e13-7.
- Schmid SP, Schleicher ED, Cegan A, Deuschle C, Baur S, Hauser AK, Synofzik M, Srulijes K, Brockmann K, Berg D, Maetzler W.** Cerebrospinal fluid fatty acids in glucocerebrosidase-associated Parkinson's disease. *Mov Disord.* 2012 Feb;27(2):288-92.
- Srulijes K, Reimold M, Liscic RM, Bauer S, Dietzel E, Liepelt-Scarfone I, Berg D, Maetzler W.** Fluorodeoxyglucose positron emission tomography in Richardson's syndrome and progressive supranuclear palsy-parkinsonism. *Mov Disord.* 2012 Jan;27(1):151-5.

**Synofzik M, Maetzler W, Vom Hagen JM, Schols L, Heneka MT, Jessen F, Matej R, Parobkova E, Kovacs GG, Strobel T, Sarafov S, Tournev I, Jordanova A, Danek A, Arzberger T, Fabrizi GM, Testi S, Salmon E, Santens P, Martin JJ, Cras P, Vandenberghe R, De Deyn PP, Cruts M, Van Broeckhoven C.** A Pan-European study of the C9orf72 Repeat Associated with FTLD: Geographic Prevalence, Genomic Instability and Intermediate Repeats. *Hum Mutat*. 2012 Oct 30.

**Weber YG, Lerche H.** Genetik der idiopathischen Epilepsien. *Nervenarzt* 2013;84:151-6.

van der Zee J, Gijsselinck I, Dillen L, Van Langenhove T, Theuns J, Engelborghs S, Philtjens S, Vandenbulcke M, Sleegers K, Sieben A, Baumer V, Maes G, Corsmit E, Borroni B, Padovani A, Archetti S, Perneczky R, Diehl-Schmid J, de Mendonca A, Miltenberger-Miltenyi G, Pereira S, Pimentel J, Nacmias B, Bagnoli S, Sorbi S, Graff C, Chiang HH, Westerlund M, Sanchez-Valle R, Llado A, Gelpi E, Santana I, Almeida MR, Santiago B, Frisoni G, Zanetti O, Bonvicini

## BOOKS, BOOK CHAPTERS, AND PROCEEDINGS

**Ackermann H.** Sprech- und Stimmstörungen (Dysarthrophonien). In Brandt T, Diener HC, Gerloff C (eds): Therapie und Verlauf neurologischer Erkrankungen, 6. Auflage. W. Kohlhammer Verlag, Stuttgart, 2012; pp. 248-251

**Ackermann H.**, Liuzzi G. Aphasie. In Brandt T, Diener HC, Gerloff C (eds): Therapie und Verlauf neurologischer Erkrankungen, 6. Auflage. W. Kohlhammer Verlag, Stuttgart, 2012; pp. 239-247

**Ackermann H.** (federführender Autor). Neurogene Sprech- und Stimmstörungen (Dysarthrie / Dysarthrophonie). In Leitlinien für Diagnostik und Therapie in der Neurologie, 5. Auflage. Georg Thieme Verlag, Stuttgart, 2012; pp. 1072-1077

**Ackermann H.**, Schönle PW (federführende Autoren). Multiprofessionelle neurologische Rehabilitation. In Leitlinien für Diagnostik und Therapie in der Neurologie, 5. Auflage. Georg Thieme Verlag, Stuttgart, 2012; pp. 1044-1050

**Ackermann H.** Neurobiologische Grundlagen des Sprechens. In Karnath HO, Thier P (eds): Kognitive Neurowissenschaften, 3. Auflage. Springer Verlag, Berlin, 2012; pp. 415-421

**Ackermann H.** Störungen des emotionalen Erlebens und Verhaltens. In Karnath HO, Thier P (eds): Kognitive Neurowissenschaften, 3. Auflage. Springer Verlag, Berlin, 2012; pp. 645-652

Adolphs R, **Ackermann H.** Physiologie und Anatomie der Emotionen. In Karnath HO, Thier P (eds): Kognitive Neurowissenschaften, 3. Auflage. Springer Verlag, Berlin, 2012; pp. 635-644

Büchel C, **Karnath H-O, Thier P.** Methoden der kognitiven Neurowissenschaften. In: Karnath H-O, Thier P (eds). Kognitive Neurowissenschaften. Springer Verlag, Berlin-Heidelberg. 2012;9-32

Driver J, **de Haan B.** Störungen der Aufmerksamkeit. In: Karnath H-O, Thier P (eds). Kognitive Neurowissenschaften. Springer Verlag, Berlin-Heidelberg. 2012;341-352

Endres D, Adam R, **Giese MA**, Noppeney U. Understanding the semantic structure of human fMRI brain recordings with formal concept analysis. In: Domenach F, Ignatov DI, Poelmans J (eds.). ICFCA 2012, LNAI 7278. Springer-Verlag, Berlin-Heidelberg. 2012;96–111

Fleischer F, **Giese MA**. Computational Mechanisms of the Visual Processing of Action Stimuli. In: Shiffra M, Johnson K (eds). Perception of the Human Body in Motion: Findings, Theory, and Practice. Oxford University Press, Oxford, UK. 2012;388-415

# ANNUAL REPORT

- Gasser T, Maetzler W.** Molekulargenetik und Neurobiologie von neurodegenerativen Demenzen. In: Wallesch und Förstl, Demenzen. Thieme, Stuttgart, 2012.
- Giese MA, de Gelder B.** Nichtverbale Kommunikation. In: Karnath H-O, Thier P (eds). Kognitive Neurowissenschaften. Springer Verlag, Berlin-Heidelberg. 2012;479-493
- Ilg U, Thier P.** Neuronale Grundlagen visueller Wahrnehmung. In: Karnath H-O, Thier P (eds). Kognitive Neurowissenschaften. Springer Verlag, Berlin-Heidelberg. 2012;35-43
- Ilg U, Thier P.** Zielgerichtete Augenbewegungen. In: Karnath H-O, Thier P (eds). Kognitive Neurowissenschaften. Springer Verlag, Berlin-Heidelberg. 2012;377-388
- Ilg W, Timmann D.** Overview of the general management of cerebellar disorders. In: Manto M, Gruol D, Schmahmann J, Koibuchi N, Rossi F (eds). Handbook of the Cerebellum and Cerebellar Disorders. Springer Verlag, Berlin-Heidelberg. 2012;2349-2370
- Karnath H-O.** Agnosie von Objektorientierungen. In: Karnath H-O, Thier P (eds). Kognitive Neurowissenschaften. Springer Verlag, Berlin-Heidelberg. 2012;173-178
- Karnath H-O.** Anosognosie. In: Karnath H-O, Thier P (eds). Kognitive Neurowissenschaften. Springer Verlag, Berlin-Heidelberg. 2012;201-213
- Karnath H-O.** Bálint-Holmes-Syndrom. In: Karnath H-O, Thier P (eds). Kognitive Neurowissenschaften. Springer Verlag, Berlin-Heidelberg. 2012;293-304
- Karnath H-O.** Neglect. In: Karnath H-O, Thier P (eds). Kognitive Neurowissenschaften. Springer Verlag, Berlin-Heidelberg. 2012;279-291
- Karnath H-O.** Pusher Syndrom. In: Karnath H-O, Thier P (eds). Kognitive Neurowissenschaften. Springer Verlag, Berlin-Heidelberg. 2012;273- 278
- Karnath H-O, Thier P.** Kognitive Neurowissenschaften. 3. Auflage, Springer Verlag Berlin-Heidelberg. 2012.
- Karnath H-O, Zihl J.** Neglekt und andere räumliche Orientierungsstörungen. In: Brandt T, Diener HC, Gerloff C (eds). Therapie und Verlauf neurologischer Erkrankungen. 6. Auflage. Kohlhammer, Stuttgart. 2012;257-264
- Karnath H-O, Zihl J.** Rehabilitation bei Störungen der Raumkognition. In: Diener HC, Weimar C et al. (eds). Leitlinien für Diagnostik und Therapie in der Neurologie. 5. Auflage. Thieme, Stuttgart. 2012;1144-1149
- Layher G, **Giese MA**, Neumann H. Learning representations for animated motion sequence and implied motion recognition. In: Villa AEP, Duch W, Erdi P, Masulli F, Palm G (eds). Artificial Neural Networks and Machine Learning, ICANN 2012, LNCS 7552. Springer Berlin Heidelberg, 2012:288-295.
- Perenin M-T, **Himmelbach M.** Optische Ataxie. In: Karnath H-O, Thier P (eds). Kognitive Neurowissenschaften. Springer Verlag, Berlin-Heidelberg. 2012;389-402
- Schneider-Gold C, **Melms A**, Wiendl H, Hohlfeld R. Myasthenia gravis und myasthene Syndrome. In: Brandt Th, Diener C, Gerloff C (eds.) Therapie und Verlauf neurologischer Erkrankungen. 6. Auflg. Kohlhammer, pp. 1302-1325
- Taubert N, Christensen A, Endres D, **Giese MA**. Online simulation of emotional interactive behaviors with hierarchical gaussian process dynamical models. Proceedings of the ACM Symposium on Applied Perception (ACM-SAP 2012). 2012;25-32
- Thier P.** Anatomie und Physiologie des parietalen Kortex. In: Karnath H-O, Thier P (eds). Kognitive Neurowissenschaften. Springer Verlag, Berlin-Heidelberg. 2012;225-240

- Thier P.** Die funktionelle Architektur des präfrontalen Kortex. In: Karnath H-O, Thier P (eds). *Kognitive Neurowissenschaften*. Springer Verlag, Berlin-Heidelberg. 2012;575-583
- Thier P.** Grundlagen zielgerichteter Motorik. In: Karnath H-O, Thier P (eds). *Kognitive Neurowissenschaften*. Springer Verlag, Berlin-Heidelberg. 2012;355-365
- Thier P.** Kleinhirn und visuelle Wahrnehmung. In: Karnath H-O, Thier P (eds). *Kognitive Neurowissenschaften*. Springer Verlag, Berlin-Heidelberg. 2012;619-623
- Ziemann U.** Grundlagen der Interventionellen Neurophysiologie - Stimulationstechniken. In Claßen/Schnitzler (eds): *Interventionelle Neurophysiologie*. Georg Thieme Verlag KG, Stuttgart, 2012; pp. 40-54

# **IMPRINT**

## **Published by**

The Center of Neurology  
University Hospital of Neurology  
Hoppe-Seyler-Straße 3

and

Hertie-Institute for Clinical Brain Research  
Otfried-Müller-Straße 27  
D-72076 Tübingen

## **Coordination:**

Prof. Dr. Thomas Gasser and Dr. Astrid Proksch

## **Printed by**

Druckerei Maier GmbH, Rottenburg am Neckar

© Center of Neurology, Tübingen, Mai 2013

All rights reserved

