



Research @ Department of Neurology

Dear Reader,

With this newsletter, we have the pleasure to give you insights into ongoing research activities at our Department and to portrait the people behind it. In addition, we would like to inform you about upcoming events, recent publications and open calls for proposals.

We hope you will enjoy reading it!

The Research Board of the Department of Neurology

November/December 2020

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Just Asking...



Arseny Sokolov, PD Dr.med. Dr.phil.

What are your main research interest?

My primary research focus is innovation and optimization in cognitive neurorehabilitation. Unfortunately, the current approaches and corresponding scientific evidence remain rather limited. After a thorough analysis of the available literature, we have proposed several methodological advances that we are about to implement in randomized

controlled trials in different neurological conditions such as multiple sclerosis, stroke or early dementia. In particular, we use closed-loop adaptive serious video games and virtual reality that are believed to promote motivation and personalization. Some of the approaches have been developed by our partners in San Francisco, but we also start developing neurorehabilitation games ourselves.

Multimodal brain network analyses represent another major research area. The understanding of brain function depends on the optimal integration of the different types of brain imaging data. We have combined diffusion tensor and functional magnetic resonance imaging data to assess how brain structure gives rise to functional communication.

Last but not least, I am very interested in social cognition. Despite the major impact of social cognition impairments on everyday life, the evaluation and management of these deficits is unfortunately underdeveloped in patients with acquired brain damage. Our goal is to understand better the prevalence and causes of social cognition deficits from a neuropsychological perspective. We also study the cerebro-cerebellar networks engaged in body language reading, and use technology to promote the assessment and neurorehabilitation

What is your motivation to do research?

All clinicians know how rewarding it is to see your patients happy and satisfied. And how disappointing it is when your diagnostic and treatment options are limited. This is where research comes into play. Ever since, research has driven clinical progress and thus





contributed to improving patient care. This is particularly true in neurorehabilitation and it is great fun to see how excited our study patients are to play the games and how they improve. Furthermore, the brain is the most fascinating organ one could imagine and there are many different methods to observe it in action. For me, research also offers the ideal complement to clinical work – sparking creativity and considerations that can be brought back to the patient.

Arseny Sokolov is Vice Director, University Neurorehabilitation, Department of Neurology, University Hospital Inselspital Bern. Contact: arseny.sokolov@insel.ch

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Congratulations

(1) Promotions



Prof. Dr. med. Hakan Sarikaya

The Executive Board of the University of Bern (Universitätsleitung) has confirmed the appointment of Hakan Sarikaya as **Titularprofessor**.

(2) Awarded Grants



PD Dr. med. Mirjam Heldner (Main Applicant)

Funding Institution: Swiss Heart Foundation (Link)

Title: BISS – Bernese Intracranial Stenosis

Study

Joint Applicants: PD Pasquale Mordasini, Prof. Urs Fischer

Awarded Grant: CHF 50'000









Dr. med. Thomas Meinel (Main Applicant)

Funding Institution: Swiss Heart Foundation (Link)

Title: Clinically silent brain ischemic lesions (SILENT) -

MRI substudy

Joint Applicants: Dr.med. Arsany Hakim (Neuroradiologie),

Prof. Laurent Roten (Kardiologie), Prof. Urs Fischer (Neurologie)

Awarded Grant: CHF 60'000



Dr. med. Jan Rosner (Co-Main Applicant)

Funding Institution: MLR-Stiftung und Stiftung für

Rheumaforschung (Link)

Title: Pain or no pain – A Role for Cross-Talk between

Skin Fibroblasts and Nerve Fibers in Complex

Regional Pain Syndrome and Charcot

Neuropathy

Joint Applicants: Astrid Jüngel (Rheuma UZH, Co-main applicant),

Florian Brunner (Rheuma UZH), Martin Berli

(Orthopädie UZH)

Awarded Grant: CHF 300'000









Dr. med. Jan Rosner (Co-Applicant)

Funding Institution: Craig H. Neilsen Foundation (Spinal Cord Injury

on the Translational Spectrum) (Link)

Title: SCI Pharmacovigilance: a Drug Safety Platform

to Improve Neurologic Outcomes in Spinal Cord

Injury

Joint Applicants: Jacquelyn Cragg (main applicant), Brian Kwon,

Andrei Krassioukov (UBC, Vancouver),

Catherine Jutzeler (ETH)

Awarded Grant: USD 297'000



Dr. med. Anelia Dietmann (Career Funding)

Funding Institution: Faculty of Medicine of the University of Bern/

Grant for Protected Research Time (Link)

Title: Encephalitis Meningitis Sleep Study Bern

Awarded Grant: Protected Research Time

Supervisor: PD Olivier Scheidegger (Neuromuscular Center)



Dr. med. Elena Wenz (Career Funding)

Funding Institution: Faculty of Medicine of the University of Bern/

Grant for Protected Research Time (Link)

Title: Finding new biomarkers in Central Disorders of

Hypersomnolence- multimodal phenotyping and

a novel peptidomic approach

Awarded Grant: Protected Research Time

Supervisor: Prof. Claudio Bassetti







Dr. med. Gerd Tinkhauser (Career Funding)

Funding Institution: Swiss Neurological Society/ SNG-Stipendium

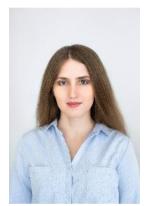
2020 (Link)

Title: Electrophysiological signature of motor and non-

motor fluctuations for closed-loop deep brain

stimulation in Parkinson's disease

Awarded Grant: CHF 10'000



Dr.med. Irina Filchenko (Career Funding)

Funding Institution: European Academy of Neurology (EAN)/ EAN

Research Fellowship 2021 (Link)

Title: The role of sleep-disordered breathing in the

evolution of cognitive functioning after ischemic

stroke

Awarded Grant: Protected Research Time

Supervisor: Prof. Claudio Bassetti, Dr.phil Simone Duss





(3) Awarded Prizes



Jasmine Jendoubi (PhD student ZEN)

At this year's Day of BioMedical Research 2020, Jasmine Jendoubi won the prize for the best clinical project Link

Title: Differential spindle expression dependent upon

thalamic nuclei lesioned by stroke

Supervisors: Prof. Bassetti, C.Gutierrez Herrera, PhD, and

Dr. med. M.Schmidt



Kotryna Genceviciute (Stroke) won the ESO-WSO 2020 Best Poster Prize Link

Title: The Association of Glucose Control with Reperfusion success, Clinical Outcome and Complications after Mechanical Thrombectomy in Ischemic Stroke



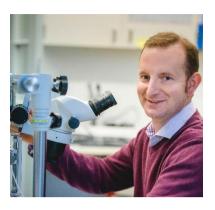


UNIVERSITÄT BERN Klinische Neurowissenschaften Bern

(4) Outstanding Publications



Prof. Claudio Bassetti (Last Author; equally contributed)



Prof. Antoine Adamantidis (Last Author; equally contributed)

Publication details

C. Gutierrez Herrera, F. Girard, A. Bilella, T.C. Gent, D.M. Roccaro-Waldmeyer, A. Adamantidis & M.R. Celio: *Neurons in the Nucleus papilio contribute to the control of eye movements during REM sleep.*Nature Communications, (2019)10:5225, https://doi.org/10.1038/s41467-019-13217-y

Media Release

(5) Other Research and Teaching Highlights



IRC Decoding Sleep to be extended for another 2 years. All three Interfaculty Research Cooperations (IRC) at the University of Bern have produced high-quality scientific output in the last two years, among them "Decoding Sleep" (Managed by Prof. Claudio Bassetti). Now, they have been extended for 2 more years.

Media Release



NEUROZENTRUM Neurocentre I Neurocentro Inselspital Universitätsspital Bern Universitäre Psychiatrische Dienste Bern



Klinische Neurowissenschaften Bern





The Stroke Unit Team (Lead: Prof. Urs Fischer) got the endorsement of the European Stroke Organisation (ESO) to develop a European Master of Advanced Studies in Stroke Medicine at the University of Bern (MAS). The first study course is planned to start in spring semester 2022.

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Call for Grants and Prizes

Research Grants Neurology 2021

Focus of the grant: Clinical and basic (translational scholarship) research; Protected Research Time

Eligible for: Young researchers

Excellence in Diversity Fellowship



- Aims at excellent female residents
 (Assistenzärztinnen) and (for substantiated reasons) female senior registrars
 (Oberärztinnen) in the field of Neurology who have acquired experience in clinical work as well as in research and show a high potential for an academic career.
- Protected research time will be awarded for a duration of a minimum of 3 and up to 12 months (part-time or full-time), depending on the planned research activity.
- The Excellence in Diversity Fellowship will be awarded on a competitive basis.
- Submission Deadline: 28 February 2021 Link

Research Grant in Neurology



- Aims at excellent residents (Assistenzärzte/innen)
 and (for substantiated reasons) senior registrars
 (Oberärzte/innen) in the field of Neurology who have acquired experience in clinical work as well as in research and show a high potential for an academic career.
- Protected research time will be awarded for a duration of a minimum of 3 and up to 12 months (part-time or full-time), depending on the planned research activity.
- The Excellence in Diversity Fellowship will be awarded on a competitive basis.
- Submission Deadline: 28 February 2021 <u>Link</u>





Bridge Scholarship in Translational Research in Neurology





- Aims at excellent clinicians and basic researchers before their MD-PhD in the field of Neurosciences who wish to write a PhD thesis in the field of Neurosciences.
- Ideally, the PhD thesis is supervised by a clinician and a basic researcher
- The Scholarship will be awarded on a competitive basis.
- Submission Deadline: 28 February 2021 <u>Link</u>

ETH Zurich: Branco Weiss Fellowship



Focus of the grant: All research fields (clinical and basic research)

Eligible for: Young Researchers with PhD

- The fellowship addresses junior researchers with a record of outstanding scientific achievement and a passion for venturing into new territory.
- You have obtained your PhD a maximum of five years prior to January 15, 2021
- You do not hold/have not held a faculty-equivalent position (e.g. assistant professor or lecturer)
- Your project departs from the mainstream of research in your discipline
- You have a record of outstanding scientific achievement
- Duration: 5 years, CHF 100'000 per year
- Submission Deadline: 15 January 2021 <u>Link</u>





UniBE Initiator Grants



Focus of the grant: Clinical and basic research; support of preparation of third-party funding

applications

Eligible for: Young researchers

• The "UniBE Initiator Grants" support early career researchers at the University of Bern in the preparation of third-party funding applications post PhD.

 These applications can be either for support of the researcher themselves (individual funding) or for support of their own projects (project funding).

The maximum amount of an application may not exceed CHF 30,000

Submission Deadline: 23 February 2021 Link

Other Open Calls for Proposals

 ILAE COVID-19 and Epilepsy Research Award Deadline: 15 December 2020 Link

 Swiss Society of Neurosciences: Best Publication Award Deadline: 21 December 2020 Link

 Swiss League Against Epilepsy: Research Recognition Award Deadline: 31 December 2020 Link

 Swiss League Against Epilepsy: Alfred Hauptmann Award Deadline: 31 December 2020 Link

 MICHAEL Foundation: MICHAEL Prize Deadline: 31 December 2020 Link

Swiss Heart Foundation Research Prize 2021
 Deadline: 31 December 2020 Link

 EAN Tournament for Neurologists in Training Deadline: 13 January 2021 Link

 ETHZ/ Branco Weiss Fellowship Deadline: 15 January 2021 Link





• SNF Eccellenza

Deadline: 1 February 2021 Link

• SNF Postdoc. Mobility

Deadline: 1 February 2021 Link

Parkinson's Foundation: Clinical Research Award
 Deadline: 21 February 2021 (Forecast) Link

• BRIDGE Discovery

Deadline: 24 February 2021 (Letter of Intent); Deadline: 11 May 2021 Link

• UniBE Initiator Grant

Deadline: 23 February 2021 Link

• Foundation for Laboratory Medicine

Deadline: 1 March 2021 Link

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Important Dates

- 8th ESO ESMINT ESNR Stroke Winter School, 2 5 February 2021; Link
- 6th Swiss Narcolepsy Day, 4 February 2021, Klinik Barmelweid, Barmelweid; Link
- CNB Science Slam, 18 March 2021, 19:30 21:30, University of Bern, Main Building, Kuppelraum; <u>Link</u>
- 7th Congress of the European Academy of Neurology Vienna 2021, 19-22 June 2021; $\underline{\text{Link}}$

Deadline for Abstract Submission: 13 January 2021 Link

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Support

1) Topic of the Month: Interview with Lead Study Nurse Marianne Kormann



Marianne Kormann is Lead Study Nurse with the Stroke Unit of the Department of Neurology. In November 2020, Marianne has successfully completed her Diploma of Advanced Studies (DAS) "Clinical Trial Practice and Management" at the University of Basel. We congratulate Marianne Kormann on this milestone in her career and take this opportunity to highlight the important work of our Study Nurses.

Congratulations on the successful completion of your Diploma of Advanced Studies! Can you tell us more about this study program?

In November 2020, I have successfully completed the <u>DAS Clinical Trial Practice and Management</u> at the University of Basel. This Diploma of Advanced Studies is a 2-3-year-program, which consists of two postgraduate educational programs, the CAS Clinical Research I and CAS Clinical Research II, plus a diploma thesis and an oral exam. The Certificate of Advanced Studies (CAS) in Clinical Research I and II, offer modules such ethical and legal aspects of clinical trials, clinical study project management, communication, collaboration and partnerships in clinical research and more. In my diploma thesis I worked on the following topic: *Entwicklung eines standardisierten Prozesses zur Feasibility Prüfung von klinischen Studien an der Neurologischen Klinik*.

What are the benefits of the DAS for your everyday work as a Study Nurse?

This advanced training lead certainly to a consolidation of all relevant topics that shape my daily work routine. It helps me to cope with requirements and challenges that I encounter in my daily work. The realization of clinical trials became much more complex and demanding during the last years. Some years ago, a database consisted of an Excel file. Today, we are using a web-based database with audit trail. Just to name one of the developments over the last years. With the DAS I learned the tools to manage and navigate through the complexity and demanding tasks of clinical trials.





What are currently your main tasks?

Today, my main task is the coordination of clinical trials with all of the different stakeholders, such as sponsors, CRO, research assistants, patients, ward (Bettenstation), different service providers (radiology, labs), etc. Moreover, all study performances need to be documented with source documents.

The role of the Study Nurse or Study Coordinator is the one of the constant in a clinical trial and the study team. Depending on the composition of a study team, researchers and other actors change, but not the Study Nurse.

2) Other News

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UNIVERSITÄT

Start of the next cohort of the CAS Clinical Research in Health Care Organisations of the University of Bern

In the CAS in Clinical Research you will learn to plan and conduct clinical research projects for a well-defined re-search question, to describe data from clinical studies, and to apply statistical methods and regression models commonly used in clinical research. The program involves approximately 450 hours of work in modules that are generally 3-day courses. Completion of the CAS usually takes 2 years, but it can be done in 1 or 3 years.

The program starts on 28 April 2021 Link

Open Access: Elsevier contingent not yet exhausted

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UNIVERSITÄT BERN

The contingent of Swiss universities' Open Access publications at Elsevier is not yet exhausted. Until the end of the year, Swiss researchers can still publish roughly 2,000 Open Access articles in Elsevier journals without having to worry about APCs. For details, please visit the <u>University Library's website</u>.





3) Training

Horizon Europe in a Nutshell



Are you curious to know what comes after Horizon 2020? Get a first impression of the main components of the new EU framework program for research and innovation during our short info event on 10 December 2020.

The event is taking place online and is open to all persons working in Switzerland.

- 10 December 2020, 10:30 11:30
- · This event is free of charge

Link

Introduction to Research Data Management





- Tuesday, December 8, 2020, 9am-5pm, online
- Intended audience: PhD students and postdocs.
- Due to the pandemic, this course will take place online. A link to the virtual seminar venue will be sent out in due course to all registered participants.

Link

CTU Trainings:

Introduction to Stata



Stata is intensively used in the medical science, both for statistical analyses and for supporting data managers and monitors. In this workshop we will learn how to use Stata step-by-step: the looks, basics, data import/export, labelling/formatting, data manipulation, good practices, help, and essential statistics. The course is open for clinical researchers of the Inselspital Bern and the staff of the Medical Faculty of the University of Bern. It is not available for external participants.

Tuesday, 9 + 16 March 2021; two half-days: 13:00 – 17:00
 Venue: ISPM; Mittelstrasse 43, 3012 Bern

Costs: Internal participants: CHF 30.00

Link and Registration

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Gender Equality and Diversity

If you come across interesting news and/ or would like to read about a specific topic related to gender equality and diversity, please let us know (chantal.kottler@insel.ch).

Advisory Services of the University of Bern



The Advisory Services of the University of Bern advise both university UNIVERSITAT BERN units as well as individuals (students, teaching and research assistants, professors, administrative employees) in gender-equality-relevant matters. The offices are the contact point for members of the university who feel they are suffering discrimination because of their gender. Link

The University of Bern has a website dedicated to all topics on sexual harrassment. On the website you will find out more about what sexual harassment is and what legal implications there are. As a member of senior staff, as a victim or an onlooker, keep informed about what you can do about sexual harassment. Link

MINSELGRUPPE

Compliance at Insel Gruppe

In case of an infringement of the Code of Conduct or internal regulations, the Compliance Department of Insel Gruppe should be contacted. Link

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Recent Publications

ZfPB

1) Amstutz D, Paschen S, Lachenmayer ML, Maradan-Gachet ME, Deuschl G, Krack P, Debove I. Management of Impulse Control Disorders with Subthalamic Nucleus Deep Brain Stimulation in Parkinson's Disease. CNS Neurol Disord Drug Targets. 2020 Jul 19. doi: 10.2174/1871527319666200720105553.

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2) Cavalloni F, Debove D, Lachenmayer LM, Krack P, Pollo C, Schuepbach MWM, Bassetti CLA, Bargiotas P. A case series and systematic review of rapid eye movement sleep behavior disorder outcome after deep brain stimulation in Parkinson's disease. Sleep Medicine. 2020 Nov 29. In Press, Journal Pre-proof. doi:10.1016/j.sleep.2020.11.025 Find article online Link to PDF

3) Kaelin-Lang A. You H. Burgunder JM. Lönnfors-Weitze T. Loher TJ. Taub E. Isaias IU. Krauss JK, Schüpbach WMM. Bilateral pallidal stimulation improves cervical dystonia for more decade. Neurolmage: Clinical, Volume 2020. 28. doi: 10.1016/j.parkreldis.2020.10.028. Find article online

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4) Léw JP, Nguyen TAK, Lachenmayer L, Debove I, Tinkhauser G, Petermann K, Segura Amil A, Michelis J, Schüpbach M, Nowacki A, Pollo C. Structure-function relationship of the posterior subthalamic area with directional deep brain stimulation for essential tremor. Parkinsonism Relat Disord. 2020 Jul;76:56-62. doi:10.1016/j.nicl.2020.102486. Find article online Link to PDF

5) Mangone G, (...) Krack P, et al. Early cognitive decline after bilateral subthalamic deep brain stimulation in Parkinson's disease patients with GBA mutations. Parkinsonism Relat Disord. 2020 Jul; 76:56-62. doi: 10.1016/j.parkreldis.2020.04.002.

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6) Morel E. Armand S. Assal F. Allali G. Normal pressure hydrocephalus and CSF tap test response: the gait phenotype matters. J Neural Transm (Vienna). 2020 Oct 26. doi: 10.1007/s00702-020-02270-3.

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7) Muthuraman M, Bange M, Koirala N, Ciolac D, Pintea B, Glaser M, Tinkhauser G, Brown P, Deuschl G, Groppa S. Cross-frequency coupling between gamma oscillations and deep brain stimulation frequency in Parkinson's disease. Brain. 2020 Nov 5; awaa297. doi: 10.1093/brain/awaa297.

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- 8) Nguyen TAK, **Schüpbach M**, Mercanzini A, Dransart A, Pollo C. *Directional Local Field Potentials in the Subthalamic Nucleus During Deep Brain Implantation of Parkinson's Disease Patients*. Front. Hum. Neurosci., 30 September 2020. doi:10.3389/fnhum.2020.521282.

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- 9) Pérennou D, Jaeger M, Debu B, Fraix V, Marquer A, Krack P, Piscicelli C, Castrioto A. Interplay of Pisa syndrome and scoliosis in individuals with Parkinson's disease treated with bilateral stimulation of subthalamic nuclei: IPOLAP study. Ann Phys Rehabil Med. 2020 Mar 5;S1877-0657(20)30035-X. doi: 10.1016/j.rehab.2020.02.001. Find article online Link to PDF

SWEZ

 Deuschl G, Beghi E, Fazekas F, Varga T, Christoforidi KA, Sipido E, Bassetti CL, Vos T, Feigin VL. The burden of neurological diseases in Europe: an analysis for the Global Burden of Disease Study 2017. Lancet Public Health. 2020 Oct;5(10):e551-e567. doi:10.1016/S2468-2667(20)30190-0.

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2) Guinchard M, Warpelin-Decrausaz L, **Schindler K**, Rüegg S, Oddo M, Novy J, Alvarez V, Rossetti AO. *Informed consent in critically ill adults participating to a randomized trial*. Brain Behav. 2020 Dec 3;e01965. doi: 10.1002/brb3.1965.

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3) Johnson EL, Kam JWY, **Tzovara A**, Knight RT. *Insights into human cognition from intracranial EEG: A review of audition, memory, internal cognition, and causality.* J Neural Eng. 2020 Oct 8:17(5):051001. doi:10.1088/1741-2552/abb7a5.

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Neurorehabilitation

 Karnath HO, Zihl J, Benke T, Brötz D, Brinkmann S, Hildebrandt H, Kerkhoff G, Kiesewalter C, Müri R, Wallesch CW, Wessel K. Kurzfassung der S1-Leitlinie "Rehabilitation bei Störungen der Raumk ognition". Zeitschrift für Neuropsychologie (2020), 31, pp. 129-134. doi:10.1024/1016-264X/a000299.

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2) Uslu AS, Gerber SM, Schmidt N, Röthlisberger C, Wyss P, Vanbellingen T, Schaller S, Wyss C, Koenig-Bruhin M, Berger T, Nyffeler T, Müri R, Nef T, Urwyler P. Asymmetric high-order anatomical brain connectivity sculpts effective connectivity. Network Neuroscience. Vol. 4(3), 2020.p.871-890. doi:10.1162/netn_a_00150

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Stroke

 Dobrocky T, Kaesmacher J, Mendes Pereira V, Gralla J, Fischer U. Maintaining high thrombectomy rates during pandemics. Curr Opin Neurol. 2020 Nov 20. doi: 10.1097/WCO.0000000000000890.

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2) **Seiffge DJ**, **Meinel TR**. The real prize of direct oral anticoagulant blockbuster. Heart. 2020 Oct 28;heartjnl-2020-318092. doi: 10.1136/heartjnl-2020-318092.

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Neuroimmunology

1) Kinner M, Prehn C, Schneider R, Schroeder C, Kolb E, Gold R, **Hoepner R, Chan A.** Course of neuropsychological impairment during Natalizumab associated progressive multifocal leuk oencephalopathy. Eur J Neurol. 2020 Oct 21. doi: 10.1111/ene.14604.

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Neuromuscular Center

 Jungo A, Scheidegger O, Reyes M, Balsiger F. pymia: A Python package for data handling and evaluation in deep learning-based medical image analysis. Comput Methods Programs Biomed. 2020 Oct 19;198:105796. doi: 10.1016/j.cmpb.2020.105796.

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Psychosomatic Medicine

1) Maggio J, Alluri PR, Paredes-Echeverri S, Larson AG, Sojka P, Price BH, **Aybek S**, Perez DL Briquet syndrome revisited: implications for functional neurological disorder. Brain Communications, Volume 2, Issue 2, 2020, fcaa156. doi:10.1093/braincomms/fcaa156.

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ZEN

1) Facchin L, Schöne C, Mensen A, Bandarabadi M, Pilotto F, Saxena S, Libourel PA, Bassetti CLA, Adamantidis AR. Slow Waves Promote Sleep-Dependent Plasticity and Functional Recovery after Stroke. J Neurosci. 2020 Nov 4;40(45):8637-8651. doi: 10.1523/JNEUROSCI.0373-20.2020.

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Contact

For any comments on the newsletter as well as all research related questions, please contact:

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