The Colombian–German network for neurodegenerative research: UndoAD

In times when multinational collaboration is threatened by isolationist policies in some countries, the scientific community knows that only through internationalism can progress occur. This factor is even more relevant in translational research, for which the added value of bringing together researchers with different expertise and the assessment of appropriate patient cohorts is fundamental. For these reasons, we write to raise awareness among the neurological community in South America about UndoAD.

The mountainous region surrounding Medellín (Colombia) is the home of many families with hereditary neurological diseases. During the past 30 years, the mutations associated with these diseases have been identified, unique clinical cohorts have been established, and a clinical registry with thousands of patient records has been assembled. These efforts also brought forth a brain bank, now comprising donations from more than 300 individuals. Many of these donations came from the largest cohort in the world with a rare form of familial Alzheimer's disease caused by an autosomal dominant presenilin mutation.[1] The suitability of this population for clinical research is exemplified by an ongoing key prevention trial,[2] conducted by an international research team of investigators in the USA and Colombia, that is testing the use of crenezumab to delay disease onset in carriers of presenilin mutations (NCT01998841).

Another fruitful collaboration has been established between Colombian and German institutions to uncover mechanisms of neurodegeneration through the study of the brains collected from this cohort of presenilin mutation carriers. This collaboration has already provided novel insights into the pathophysiology of familial Alzheimer's disease.[3,4] Our project, UndoAD, aims to identify molecular mechanisms underlying the heterogeneity in the clinical presentations of the patients from the Colombian familial Alzheimer's disease cohort. We also aim to stimulate scientific exchange, knowledge transfer, and infrastructure build up in the coming years. Additionally, UndoAD sponsors a series of summer schools taking place in Medellín, Colombia. The first of these summer schools took place on Sept 12–13, 2018, and comprised lectures and workshops on diagnostics and translational research in neurodegeneration.

Another aim of UndoAD is to generate further international collaborations. In that respect, we intend to organise a meeting focusing on brain banking, so we would like to invite scientists from other brain banks in Latin America to join our efforts in this endeavour. We want to stimulate sample exchange, protocol standardisation, and data management to increase the scope of neuropathological research in Latin America. The German Federal Ministry of Education and Research supports this project in the framework of their initiative for the promotion of research structures in Latin America. The aim of the programme is to build long-term cooperation with research institutions in partner countries.[5]

For the **German Federal Ministry of Education and Research notice** see https://www.bmbf.de/foerderungen/bekanntmachung-1216.html

For more on the **UndoAD project** see https://www.gna.org.co/undoad-project/

Figure: **Brain banking in Medellin, Colombia**
Thanks to the sustained effort of the Neuroscience Group of Antioquia (Universidad de Antioquia, Medellin, Colombia), more than 300 brains have been collected in the past 25 years. Most of these samples come from patients with hereditary neurological disorders and are stored soon after death.

MG reports grants from the German Federal Ministry of Education and Research (BMBF) and personal fees from Dianova and Janssen. DS-F reports grants from BMBF and the National Institutes of Health (NIH). FL reports grants from BMBF, API Colombia (NCT01998841), and the NIH. AV declares no competing interests.

*Diego Sepulveda-Falla, Andres Villegas, Francisco Lopera, *Markus Glatzel*
m.glatzel@uke.de

Neurosciences Group of Antioquia, Faculty of Medicine, University of Antioquia, Medellín, Colombia (DS-F, AV, FL); Institute of Neuropathology, University Medical Center Hamburg-Eppendorf, Hamburg D-20246, Germany (DS-F, MG)

We would like to thank the Colombian patients with neurological diseases and their families, who have entrusted their hopes and donated biological samples to us.

1 Sepulveda-Falla D, Glatzel M, Lopera F. Phenotypic profile of early-onset familial Alzheimer's disease caused by presenilin-1 E280A mutation. *J Alzheimers Dis* 2012; **32:** 1–12.
2 Tariot PN, Lopera F, Langbaum JB, Thomas RG, et al. The Alzheimer's Prevention Initiative Autosomal-Dominant Alzheimer's Disease Trial: a study of crenezumab versus placebo in preclinical PSEN1 E280A mutation carriers to evaluate efficacy and safety in the treatment of autosomal-dominant Alzheimer's disease, including a placebo-treated noncarrier cohort. *Alzheimers Dement* 2018; **4:** 150–60.
3 Sepulveda-Falla D, Matschke J, Bernreuther C, et al. Deposition of hyperphosphorylated tau in cerebellum of PS1 E280A Alzheimer's disease. *Brain Pathol* 2011; **21**: 452–63.
4 Sepulveda-Falla D, Barrera-Ocampo A, Hagel C, et al. Familial Alzheimer's disease-associated presenilin-1 alters cerebellar activity and calcium homeostasis. *J Clin Invest* 2014; **124:** 1552–67.