



Introductory Remarks to Symposium 22

The neuronal basis of tinnitus

Birgit Mazurek and Holger Schulze, Berlin and Erlangen

Tinnitus, the perception of sound in the absence of an external sound source, is a very common and potentially devastating condition with increasing prevalence, currently affecting about 50 million people in Europe. In many cases tinnitus leads to concentration problems, insomnia, anxiety and depression, severely affecting a person's ability to lead a normal life, sometimes even leading to suicide. In Germany, around 3 million patients seek medical help for tinnitus, and one-third of them fail to cope with their tinnitus, therefore having considerably reduced quality of life with disruption of normal societal participation, which causes enormous socio-economic impact. Despite established audiological and psychological treatment protocols, no cure is available to safely and effectively alleviate tinnitus. The reason for this lies in the fact that the neurophysiological mechanisms underlying the development of tinnitus – although a few models are discussed – are still not well understood. Available treatments such as cognitive-behavioral therapy therefore aim at enhancing the individual's coping capacities rather than healing.

The symposium will highlight recent advances in our understanding of the neuronal basis of tinnitus. Leading experts from the research consortium TIN-ACT, an Innovative Training Network (ITN) within the Marie Skłodowska-Curie Actions (MSCA) of the European Commission, will present latest results from both animal and human tinnitus research and will give an overview across our current knowledge about tinnitus assessment, causes and potential new treatment strategies. A special focus will be given to a description of abnormal neuronal activity that is associated with tinnitus, assessed e.g. by measurements of spatiotemporal dynamics of neuronal activation patterns, recorded with either multielectrode arrays implanted into auditory cortex in animal models or a combination of fMRI, MEG and EEG in humans. Furthermore, the influence of stress on tinnitus and the genes involved in tinnitus-associated stress reactions will be discussed.

Symposium 22

Friday, March 22, 2019
11:30 - 13:30, Lecture Hall 102

Chairs: Birgit Mazurek and Holger Schulze,
Berlin and Erlangen

- 11:30 **Opening Remarks**
- 11:35 Pim van Dijk, Groningen, The Netherlands
CHARACTERISTICS OF AUDITORY PROCES-
SING ASSOCIATED WITH TINNITUS (S22-1)
- 12:00 Birgit Mazurek, Berlin
TINNITUS AND COMORBIDITIES (S22-2)
- 12:25 Elouise A. Koops, Groningen, The Netherlands
CORTICAL TONOTOPIC MAPS IN TINNITUS
AND HEARING LOSS (S22-3)
- 12:40 Arnaud Norena, Marseille, France
THE PATHOPHYSIOLOGY OF TINNITUS (S22-4)
- 13:05 Holger Schulze, Erlangen
THE FINE-TUNED BRAIN: BETTER HEARING
IN TINNITUS PATIENTS DUE TO STOCHASTIC
RESONANCE? (S22-5)

