Prof. Eus J.W. Van Someren was trained in physics, psychophysiology and neuropsychology and received a cum laude PhD in neurobiology from the Faculty of Medicine of the University of Amsterdam. He is Head of the Department Sleep and Cognition at the Netherlands Institute for Neuroscience of the Royal Academy of Arts and Sciences and is professor of Neurophysiology at the VU University, Amsterdam. He received prestigious grants including the VIDI and VICI grants of the Netherlands Organization of Scientific Research (NWO) and the Advanced Grant of the European Research Council (ERC). His about 200 peer-reviewed publications in scientific journals including NEJM, Jama, Nature, Nature Neuroscience, Archives of General Psychiatry, Psychological Bulletin and PNAS have been widely cited (H-index 44). His expertise covers sleep, circadian rhythms, cognition, development and aging, thermoregulation, brain imaging and ambulatory acquisition and analysis of physiological and behavioural time-series.

Van Someren founded a Sleep Registry (www.sleepregistry.nl) to obtain a database of sleep phenotypes of many volunteers that can donate subjective and performance data every once in a while through internet. He is member of the European Insomnia Network and the Insomnia Genetics Consortium, both examples of joint efforts to accelerate progress in the understanding of risk factors, genetic predispositions and brain mechanisms involved in insomnia. The work in his group now focuses mainly on chronic insomnia, probably the most common of all disorders. Whereas chronic insomnia has traditionally been approached mostly from a psychological perspective, Van Someren has taken a leading position in trying to elucidate underlying brain circuit deviations and heritability, often in collaboration with other dedicated research groups.

In 2015, Van Someren acquired the prestigious ERC advanced grant to combine brain imaging, wearable sensors and large-scale psychometrics to elucidate why some people with insomnia develop depression whereas others are resilient. By means of early detection of the group at risk and optimized internet-supported sleep interventions, the project could add significantly to the prevention of depression.

His informal and easy manner and infectious enthusiasm for sleep and cognitive neuroscience make him a frequently invited speaker for lay, neuroscience and medical audiences and include an internet-broadcasted TED lecture.

**Brief summary of major findings**

His group demonstrated that instability of the states of sleep and wakefulness in elderly and dementia are related to functional deficits in the hypothalamic suprachiasmatic nucleus, the clock of the brain (PNAS 2009;106:2490). Other work includes the role of sleep in cognitive information processing and the interaction between sleep and thermoregulation (e.g. Brain;2008:131:500).

Involving about 10 years of preparation, data-acquisition and analysis, his group performed the first ever human controlled study on long-term (3.5 year) daily application of light and melatonin, the two major stimuli acting on the biological clock in the hypothalamic suprachiasmatic nucleus. The originality and importance of the study caught the eye of Nature and Science already before it was completed. It turned out that the relatively simple measure of enhancing environmental light had a profound impact on the quality of life of the near 200 demented elderly involved in the study. Light ameliorated disturbances of cognition, mood and activities of daily living, and did so, unlike any pharmacological approach, without adverse effects. On the contrary, everyday health problems were reported less in the active light condition (Jama 2008;299:2642, a ‘recommended paper’ by the Alzheimer Research Forum). Likewise, light promoted remission of the oftentimes treatment-resistant major depression in elderly people (Arch Gen Psychiatry 2011;68:61).

Supported by the prestigious VIDI-grant, studies applying high-density EEG, fMRI and TMS led to the first insights in functional and structural brain mechanisms of individual differences in sleep (e.g. J Neurosci 2013:33:227) and chronic insomnia (e.g. Biol Psychiatry 2010;67:182 and 2010;8:950, Brain 2014;137:610). A new model for experimental induction of insomnia-type sleep revealed a primary
hippocampal sensitivity to sleep disrupting, and the novel insight that the sleep primes the hippocampus for subsequent optimal learning (Nat Neurosci 2009;12:122). Van Someren’s group revealed for the first time that learning by observation is facilitated if observation is immediately followed by sleep (PNAS 2009;106:18926). Supported by the prestigious VICI grant, he founded the Netherlands Sleep Registry to accelerate progress in the understanding of risk factors, genetic predispositions and brain mechanisms (e.g. J Neurosci 2013;33:227, Brain 2014;137:610; PNAS 2016 in press) involved in sleep vulnerability and chronic insomnia.

Selected publications (journal impact>9)