CV – E.J. Van Someren

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 Psychatry 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)

Wassing R, Benjamins JS, Dekker K, Moens S, Spiegelhalder K, Feige B, Riemann D, Van Der Sluis S, Van Der Werf YD, Talamini LM, Walker MP, Schalkwijk F and Van Someren EJW (2016) Slow dissolving of emotional distress contributes to hyperarousal. PNAS in press. IF 9.809

Stoffers D, Altena E, van der Werf YD, Sanz-Arigita EJ, Voorn TA, Astill RG, Strijers RLM, Waterman D and Van Someren EJW (2014) The caudate: a key node in the neuronal network disbalance of insomnia? Brain 137:610-20. IF 10.226

Van Someren EJW (2014) Colors cast long shadows on brain activity. PNAS 111:5769-5770. IF 9.809

Van Someren EJW (2013) Where we are now with Alzheimer's? Nature 503:38. IF 42.351

Astill RG, van der Heijden KB, van IJzendoorn MH and Van Someren EJW (2012) Sleep, cognition and behavioral problems in school-aged children: A century of research meta-analyzed. Psychol Bull 138:1109-1138. IF 14.392.

Lieverse R, Van Someren EJW, Nielen MM, Uitdehaag B, Smit JH and Hoogendijk WJ (2011) Bright light treatment improves mood, sleep and circadian rhythms in elderly patients with major depressive disorder. A Randomized Controlled Trial. Arch Gen Psychiatry 68:61-70. IF 13.747

Axelsson J, Sundelin T, Ingre M, Van Someren EJW, Olsson A and Lekander M (2010) Beauty sleep: Sleep deprivation affects judged health and attractiveness. Brit Med J 341:c6614. IF 16.378

Van Someren EJW (2010) Doing with less sleep remains a dream. PNAS 107:16003-4. IF 9.809

Altena E, Vrenken H, Van Der Werf YD, Van Den Heuvel OAV and Van Someren EJW (2010) Reduced orbitofrontal and parietal grey matter in chronic insomnia: a voxel-based morphometric study. Biol Psychiatry 67:182-85. IF 9.472

Van Der Werf YD, Altena E, Van Dijk KD, Strijers RLM, De Rijke W, Stam CJ and Van Someren EJW (2010) Is disturbed intracortical excitability a stable trait of chronic insomnia? A study using transcranial magnetic stimulation before and after multimodal sleep therapy. Biol Psychiatry 68:950–955. IF 9.472

Van Veen MM, Kooij JJS, Boonstra AM, Gordijn MCM and Van Someren EJW (2010) Delayed circadian rhythm in adults with ADHD and chronic sleep onset insomnia. Biol Psychiatry 67:1091-1096. IF 9.472

Turner PL, Van Someren EJW and Mainster MA (2010) The role of environmental light in sleep and health: effects of ocular aging and cataract surgery. Sleep Med Rev 14:269–280. IF 9.141

Van Der Werf YD, Altena E, Schoonheim MM, Sanz-Arigita E, Vis JC, De Rijke W and Van Someren EJW (2009) Sleep benefits subsequent hippocampal functioning. Nat Neurosci 12:122-123. IF 14.805

Van Der Werf YD, Van Der Helm E, Schoonheim MM, Ridderikhoff A, Van Someren EJW (2009). Learning by observation requires an early sleep window. PNAS106:18926-18930. IF 9.809

Hu K, Van Someren EJW, Shea SA and Scheer FA (2009) Reduction of scale-invariance of activity fluctuations with aging and Alzheimer's disease: involvement of the circadian pacemaker. PNAS 106:2490-2494. IF 9.809

Lucassen PJ, Scheper W and Van Someren EJW (2009) Adult neurogenesis and the unfolded protein response; new cellular and molecular avenues in sleep research. Sleep Med Rev 13:183-185. IF 9.141

Riemersma-van der Lek R, Swaab DF, Twisk J, Hol EM, Hoogendijk WJG and Van Someren EJW (2008) Effect of bright light and melatonin on cognitive and non-cognitive function in elderly residents of group care facilities: a randomized controlled trial. JAMA 299:2642-2655. IF 30.387

Raymann RJEM, Swaab DF and Van Someren EJW (2008) Skin deep: cutaneous temperature determines sleep depth. Brain 131:500-513. IF 10.226

Lack LC, Gradisar M, Van Someren EJW, Wright HR and Lushington K (2008) The relationship between insomnia and body temperatures. Sleep Med Rev 12:307-317. IF 9.141

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Bao A-M, Hestiantoro A, Van Someren EJW, Swaab DF and Zhou J-N (2005) Colocalization of corticotropin-releasing hormone and oestrogen receptor-{alpha} in the paraventricular nucleus of the hypothalamus in mood disorders. Brain 128:1301-1313. IF 10.226

Hatfield CF, Herbert J, Van Someren EJW, Hodges JR and Hastings MH (2004) Disrupted daily activity/rest cycles in relation to daily cortisol rhythms of home-dwelling patients with early Alzheimer's dementia. Brain 127:1061-1074. IF 10.226

Schuurman PR, Bosch DA, Bossuyt PMM, Bonsel GJ, Van Someren EJW, De Bie RMA, Merkus MP and Speelman JD (2000) A comparison of continuous thalamic stimulation and thalamotomy for suppression of severe tremor. N Engl J Med 342:461-468. IF 54.420

Van Someren EJW, Kessler A, Mirmiran M and Swaab DF (1997) Indirect bright light improves circadian rest-activity rhythm disturbances in demented patients. Biol Psychiatry 41:955-963. IF 9.472

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