Photoperiodic encoding by the neuronal network of the suprachiasmatic nucleus

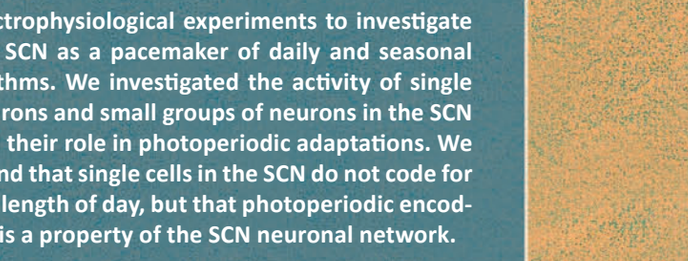
Leest, H.T. van der

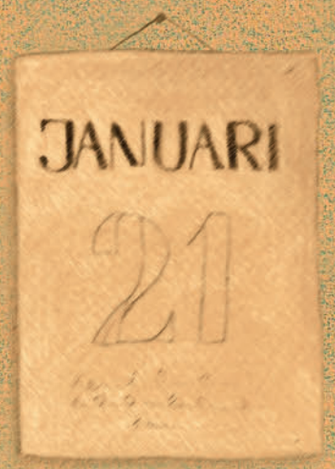
Photoperiodic Encoding by the Neuronal Network of the Suprachiasmatic Nucleus

The biological clock in mammals is located in the suprachiasmatic nucleus (SCN) and regulates daily and seasonal rhythms. The research presented in this thesis consists of behavioral and electrophysiological experiments to investigate the SCN as a pacemaker of daily and seasonal rhythms. We investigated the activity of single neurons and small groups of neurons in the SCN and their role in photoperiodic adaptations. We found that single cells in the SCN do not code for the length of day, but that photoperiodic encoding is a property of the SCN neuronal network.

The cover illustration contains references to elements in this thesis, the biological clock of the mouse in the context of seasonal changes. The tulips that bloom in spring and the fallen autumn leaves together represent the two seasons with a day length of about 12 hours. The two sheets of the calendar indicate dates that refer to winter and summer.

Illustrations by Mariska Teuben – van der Leest
Graphics design and layout by Arthur van der Leest





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