

209th WPI-IIIS Seminar

The hyperarousal of insomnia: the intersection of stress and sleep

We recently reported that a subpopulation of lateral hypothalamic (LH) GABA-releasing (LH^{GABA}) neurons are potently wake-promoting. We further showed (in collaboration with the Arrigoni lab) that sleep-promoting galaninergic neurons within the ventrolateral preoptic ($VLPO^{Gal}$) region, defined pharmacologically and by single-cell transcript analysis, are postsynaptic targets of LH^{GABA} neurons. We then found that presynaptic inputs to LH^{GABA} neurons originate from several canonical stress-related brain ‘nodes’, including a dense innervation from the bed nucleus of the stria terminalis (BNST). These findings suggest that LH^{GABA} neurons may serve as a nodal ‘interface’ between stress- and sleep/wake-related circuitries and has thereby informed our hypothesis that the $BNST \rightarrow LH^{GABA} \rightarrow VLPO^{Gal}$ pathway may represent a subcortical circuit substrate for pathologic hyperarousal, i.e., insomnia.



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Date: **Thursday, October 24, 2024**

Time: **17:15 – 18:00**

Venue: **1F Auditorium, IIIS Building**

*** On-site participation only**



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