

# From Brain to Behaviour

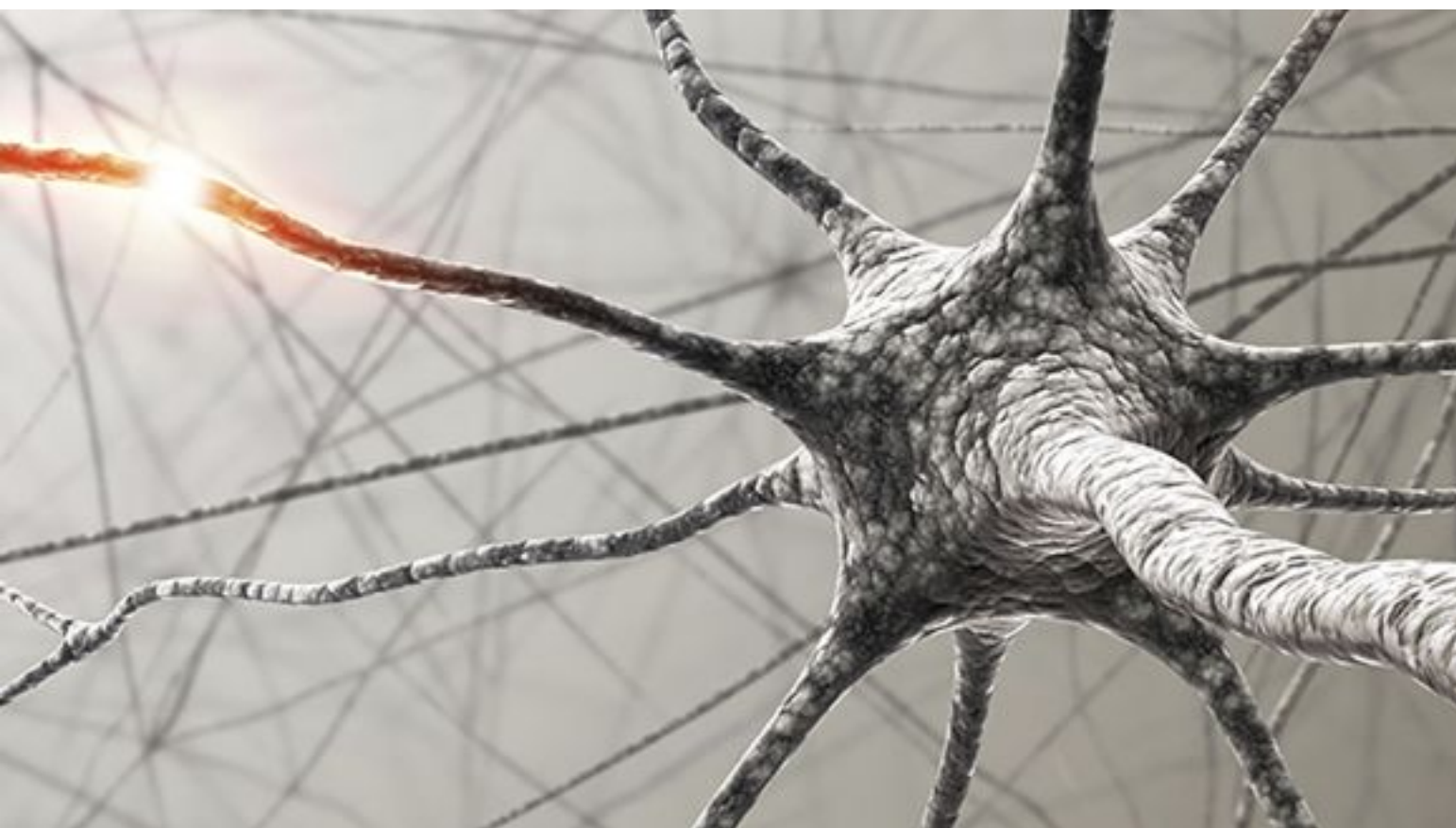
Fiona Carr: neurological disease.

Jamie Horder: cognitive neuroscience, psychiatry and autism.

Sachin Ranade: systems and computational neuroscience.

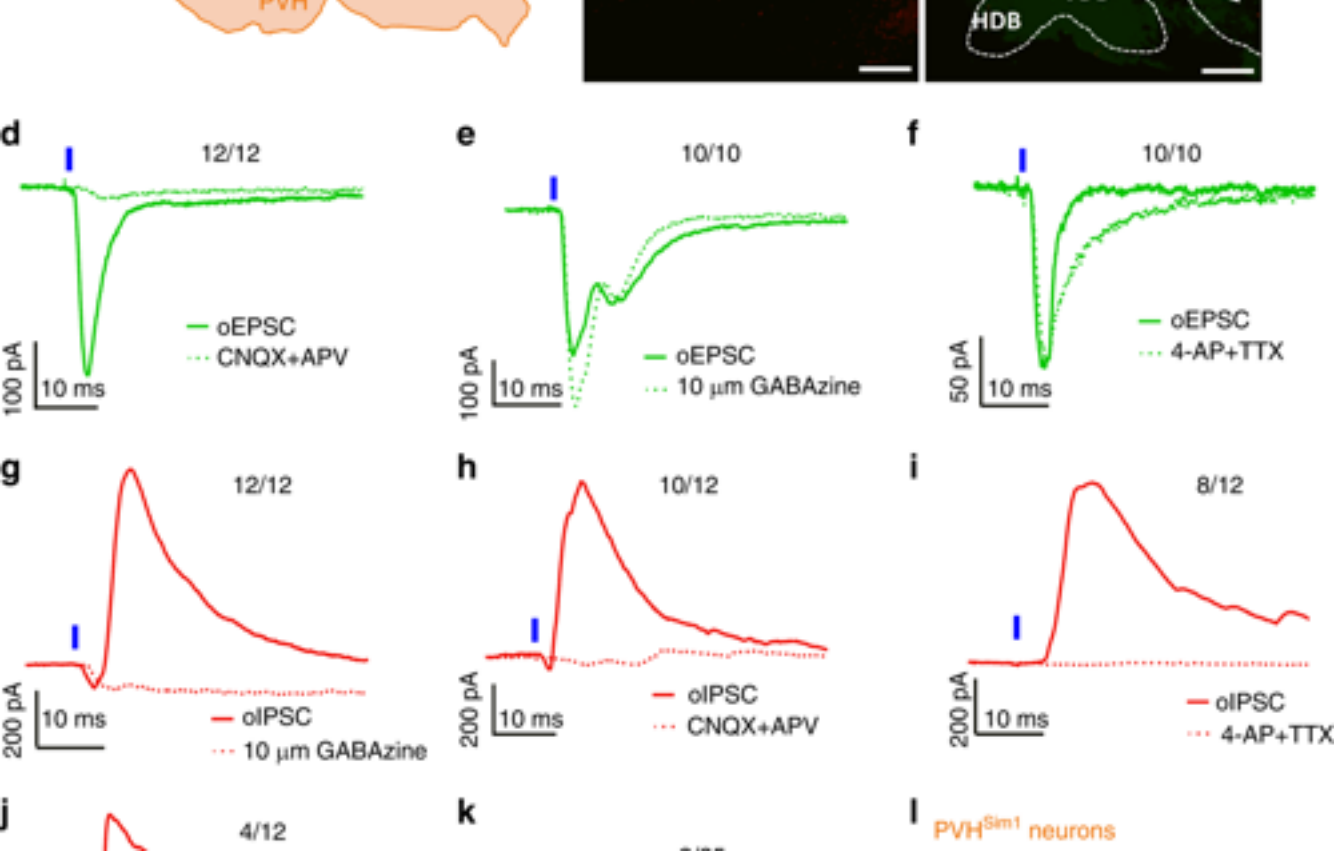
Jerome Staal: neurodevelopment, plasticity and molecular neuroscience.

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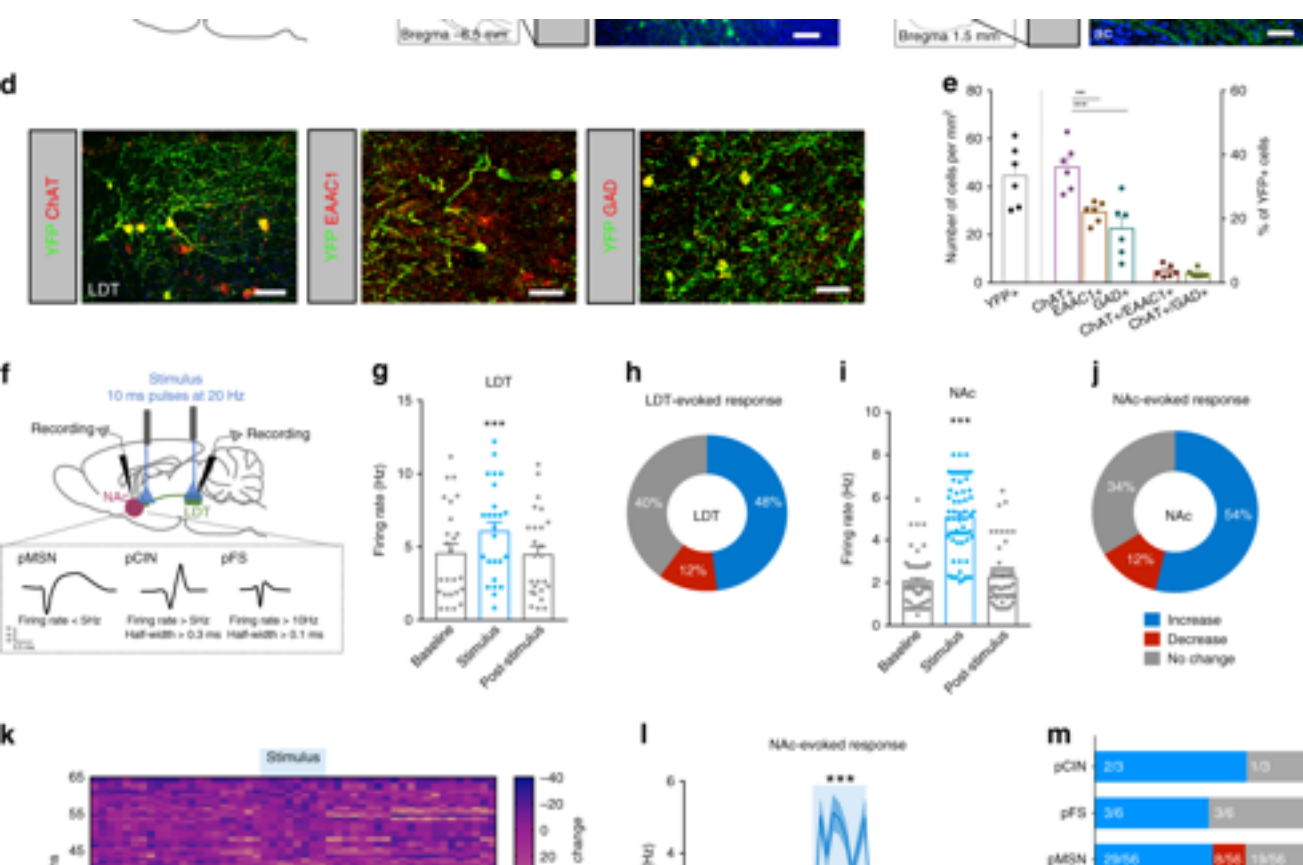


# Identification of a neurocircuit underlying regulation of feeding by stress-related emotional responses

Eating disorders are often comorbid with emotional and psychiatric symptoms yet the underlying neural circuits are poorly understood. Here, the authors report that projections from the paraventricular hypothalamus to the ventral part of the lateral septum... [show more](#)

- Yuanzhong Xu,
- Yungang Lu ...
- Qingchun Tong

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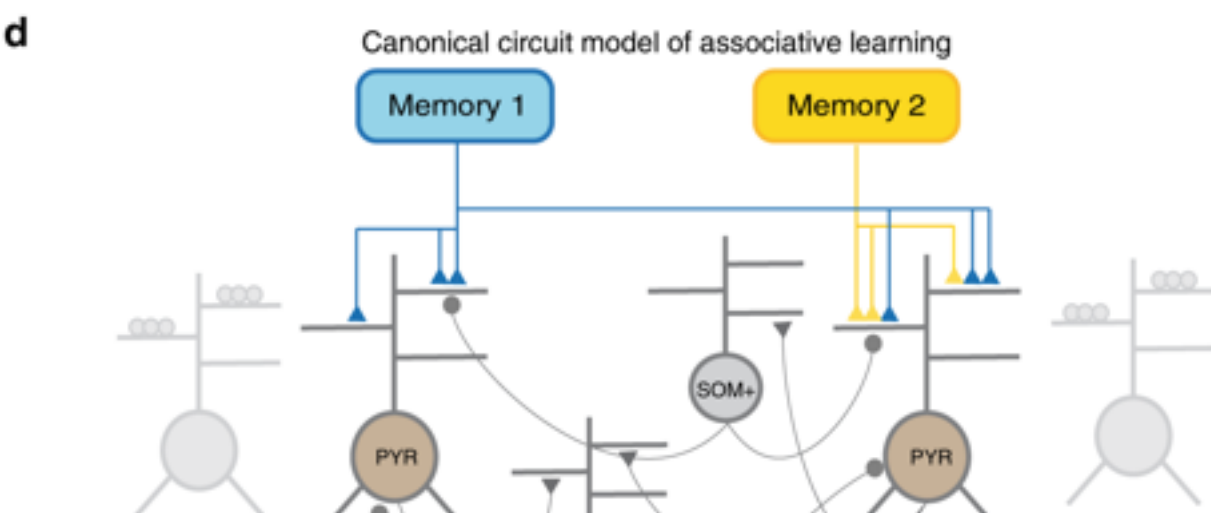
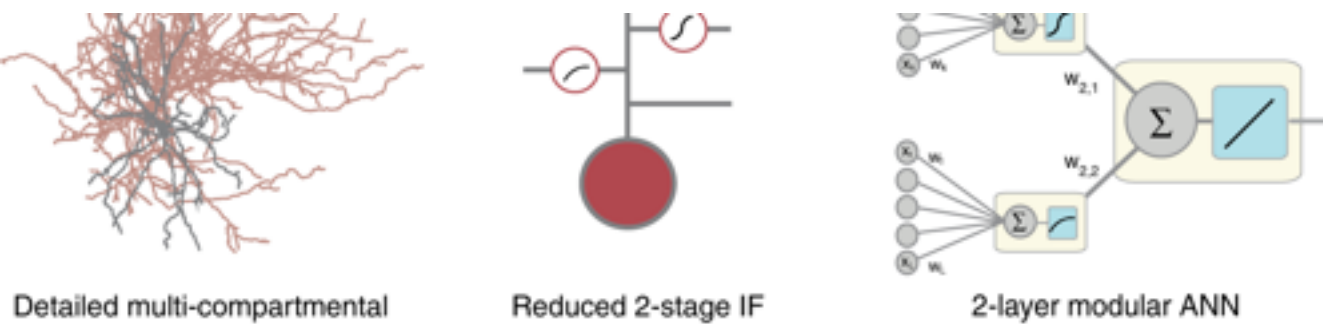
# Role of laterodorsal tegmentum projections to

# nucleus accumbens in reward-related behaviors

The laterodorsal tegmental nucleus (LDT) is known to influence reward processing through its projections to the VTA. Here, the authors report that the cholinergic projections from the LDT to the nucleus accumbens play an important role in motivation and positive reinforcement behaviors.

- Bárbara Coimbra,
- Carina Soares-Cunha ...
- Ana João Rodrigues

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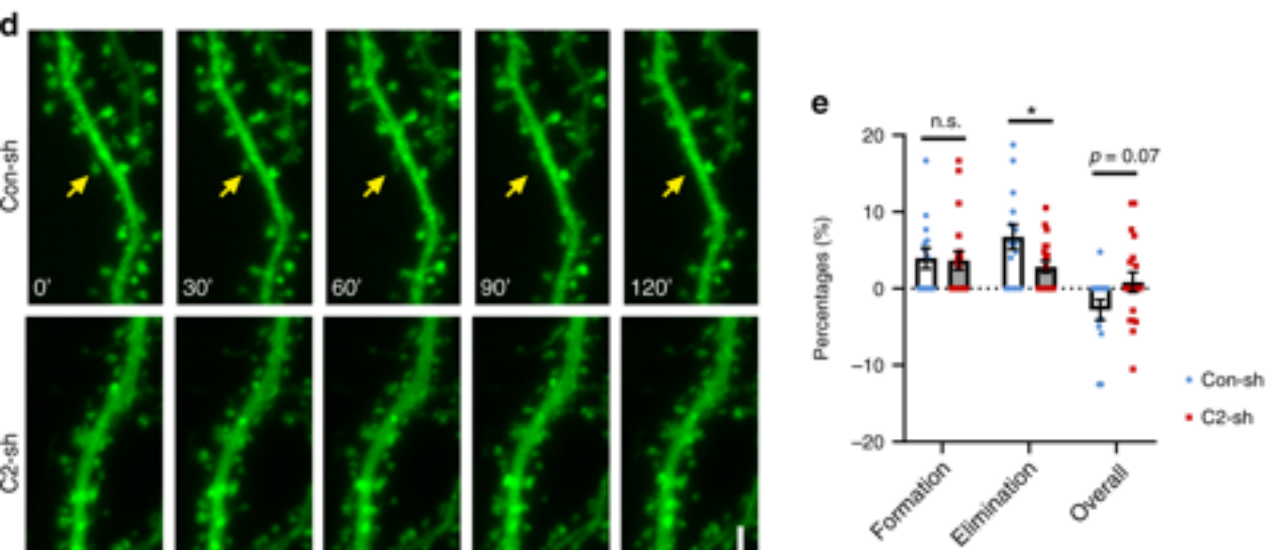
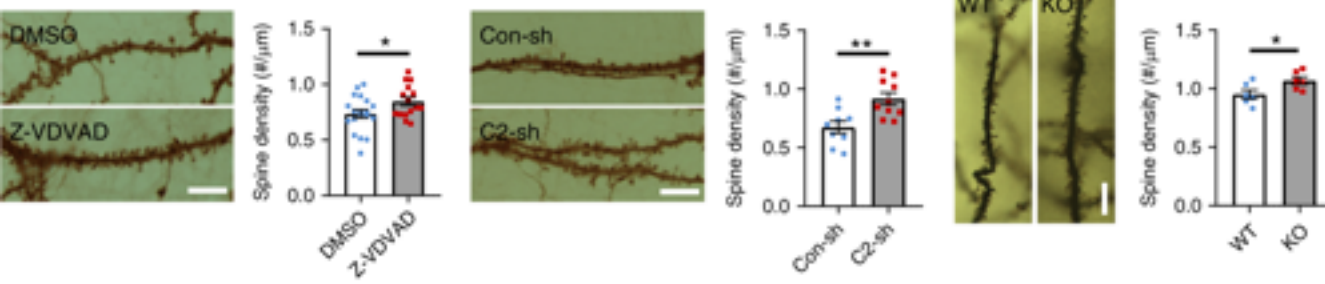


## Challenging the point neuron dogma: FS basket cells as 2-stage nonlinear integrators

Recent experimental work has revealed non-linear dendritic integration in interneurons. Here, the authors show, through detailed biophysical modeling, that fast spiking interneurons are better described with a 2-stage artificial neural network model calling into... [show more](#)

- Alexandra Tzilivaki,
- George Kastellakis &
- Panayiota Poirazi

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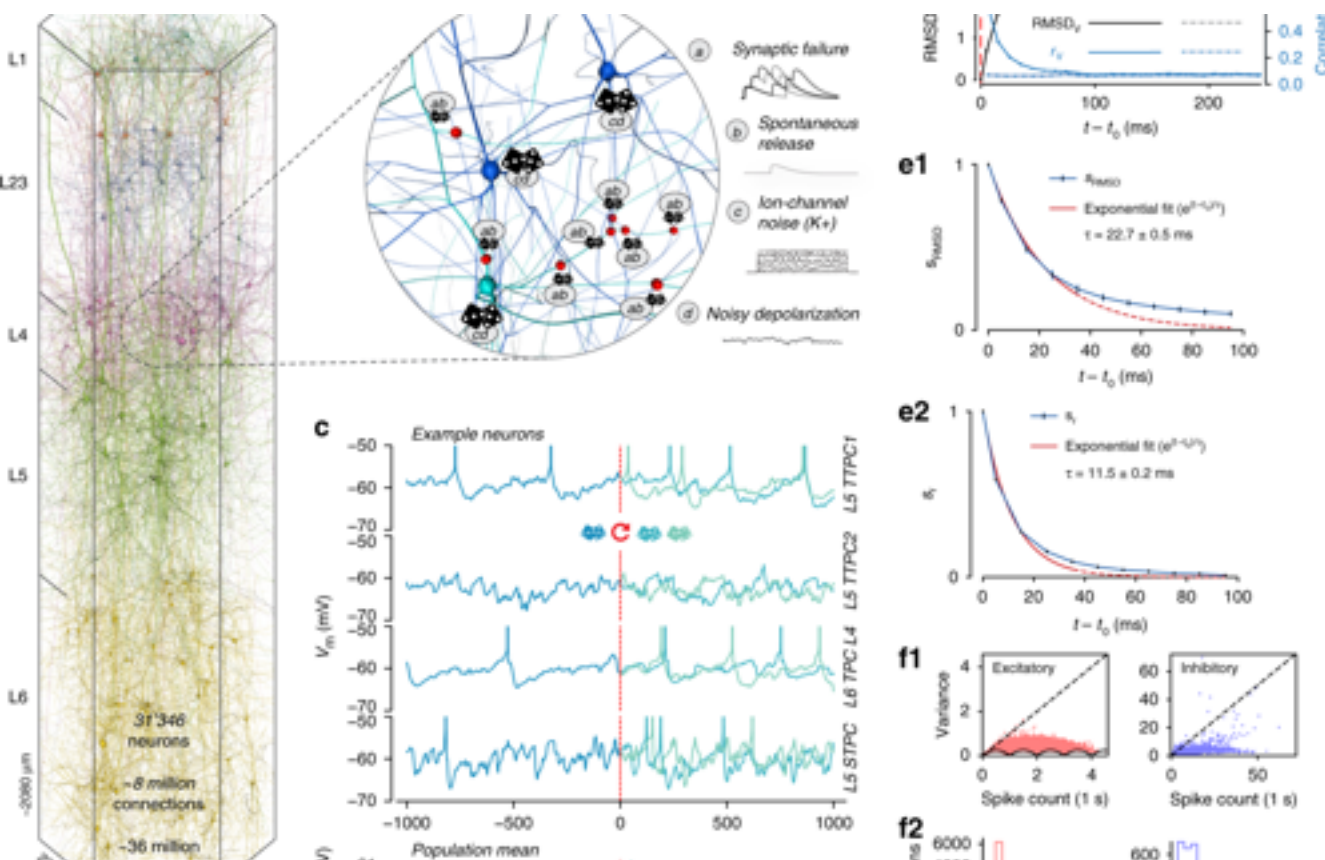


# Caspase-2 promotes AMPA receptor internalization and cognitive flexibility via mTORC2-AKT-GSK3 $\beta$ signaling

Caspase-2 is constitutively expressed in neurons yet its physiological function is not known. Here, the authors report a role for Caspase-2 activity in synaptic plasticity via a reduction in dendritic spine density through cleavage of Rictor suggesting a... [show more](#)

- Zhi-Xiang Xu,
- Ji-Wei Tan ...
- Baoji Xu

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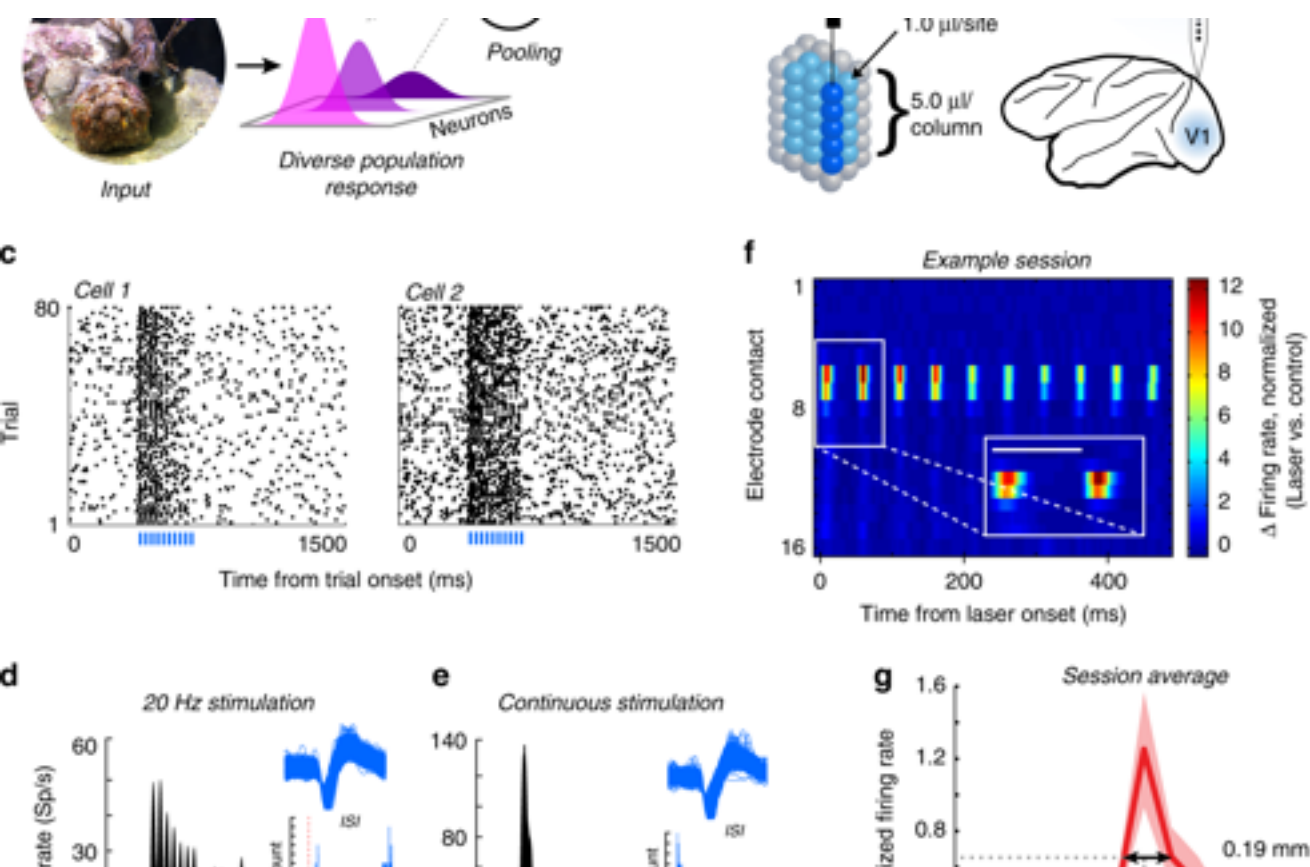


# Cortical reliability amid noise and chaos

Whether cortical neurons can fire reliable spikes amid cellular noise and chaotic network dynamics remains debated. Here the authors simulate a detailed neocortical microcircuit model and show that noisy and chaotic cortical network dynamics are compatible with... [show more](#)

- Max Nolte,
- Michael W. Reimann ...
- Eilif B. Muller

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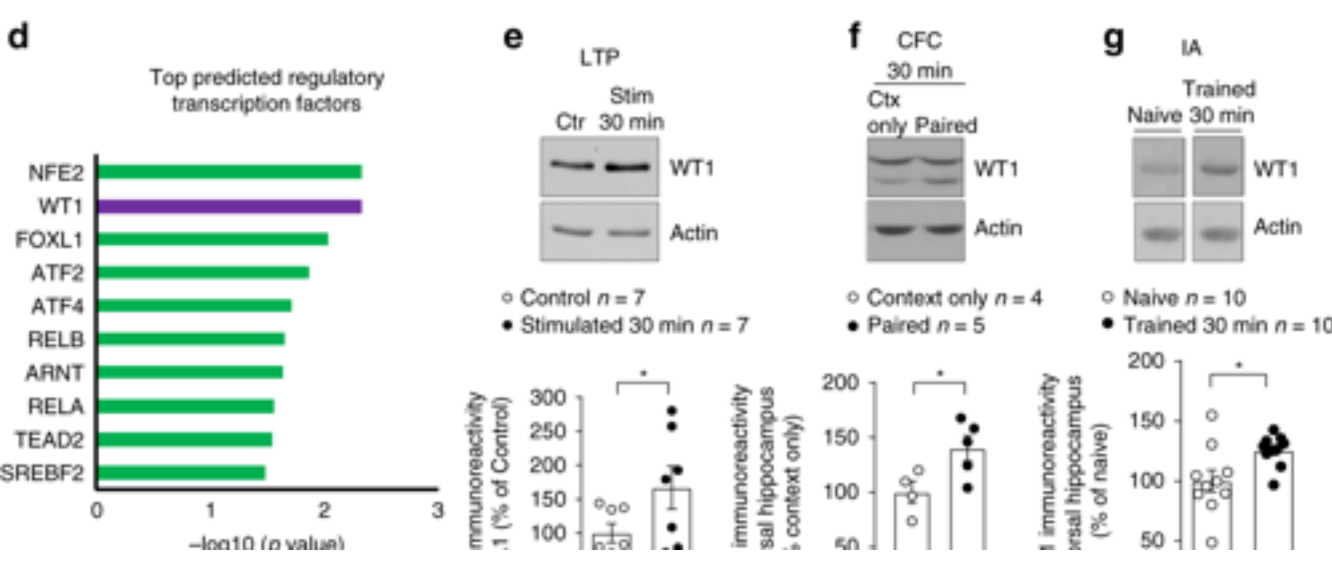
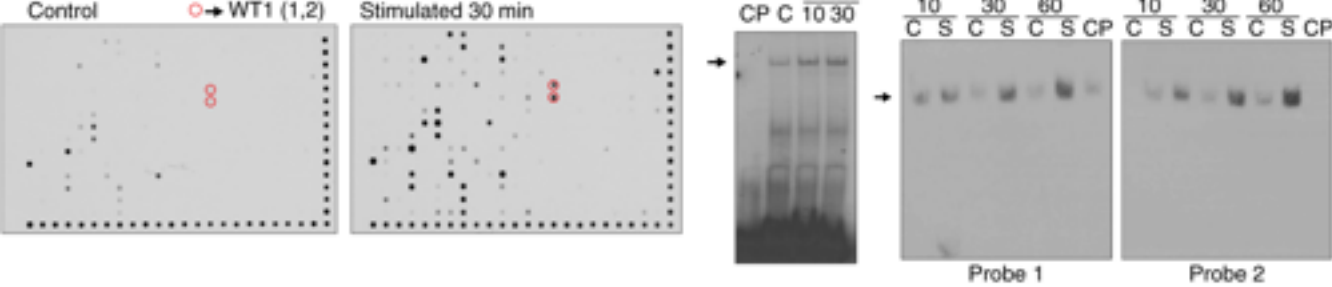


# Integration of cortical population signals for visual perception

Primary visual cortical neurons exhibit diverse responses to visual stimuli yet how these signals are integrated during visual perception is not well understood. Here, the authors show that optogenetic stimulation of neurons situated near the visually-driven... [show more](#)

- Ariana R. Andrei,
- Sorin Pojoga ...
- Valentin Dragoi

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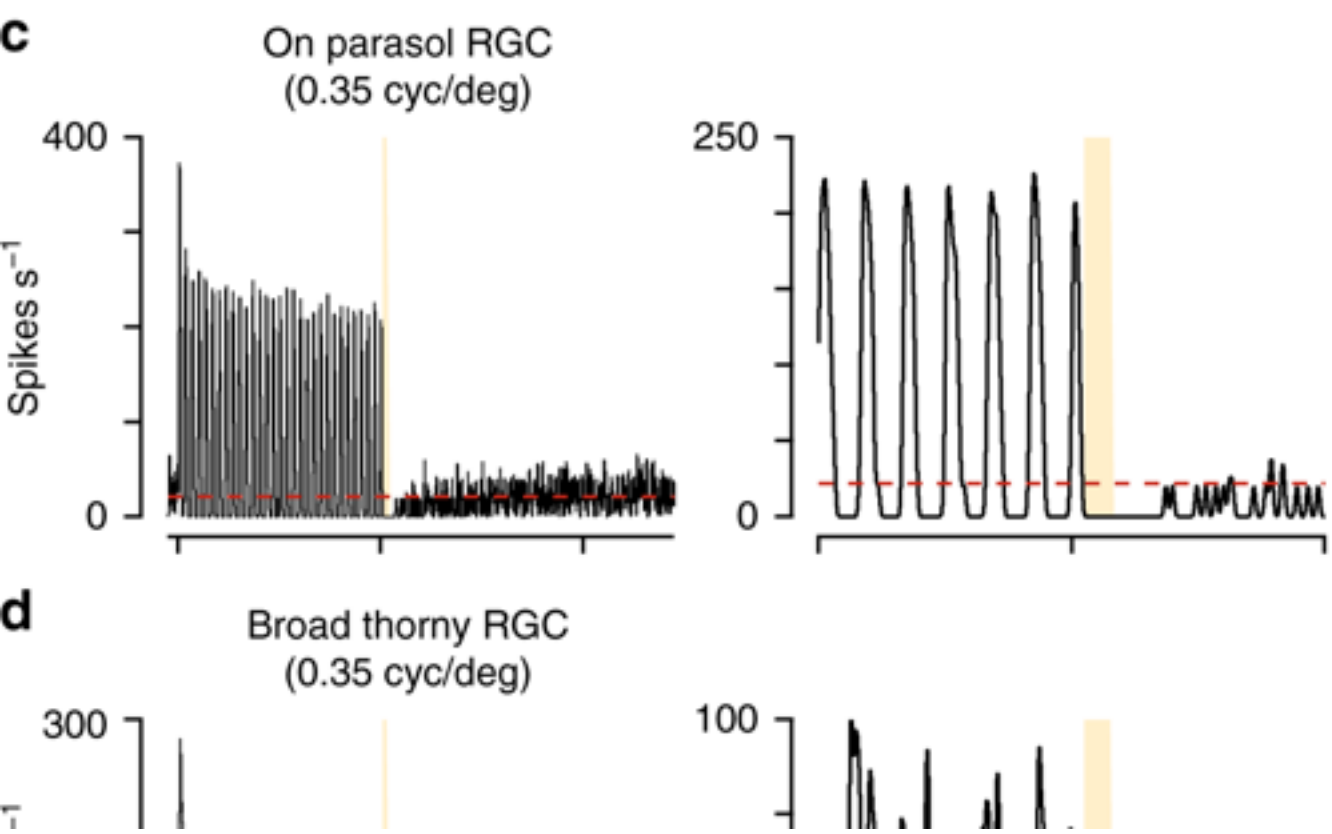


# Wilm's tumor 1 promotes memory flexibility

Impairments in memory flexibility are associated with neuropsychiatric disorders such as PTSD and autism. Here, the authors report that the transcriptional repressor Wilm's Tumor 1 regulates synaptic plasticity leading to weakening of memory strength and enabling memory flexibility.

- Chiara Mariottini,
- Leonardo Munari ...
- Ravi Iyengar

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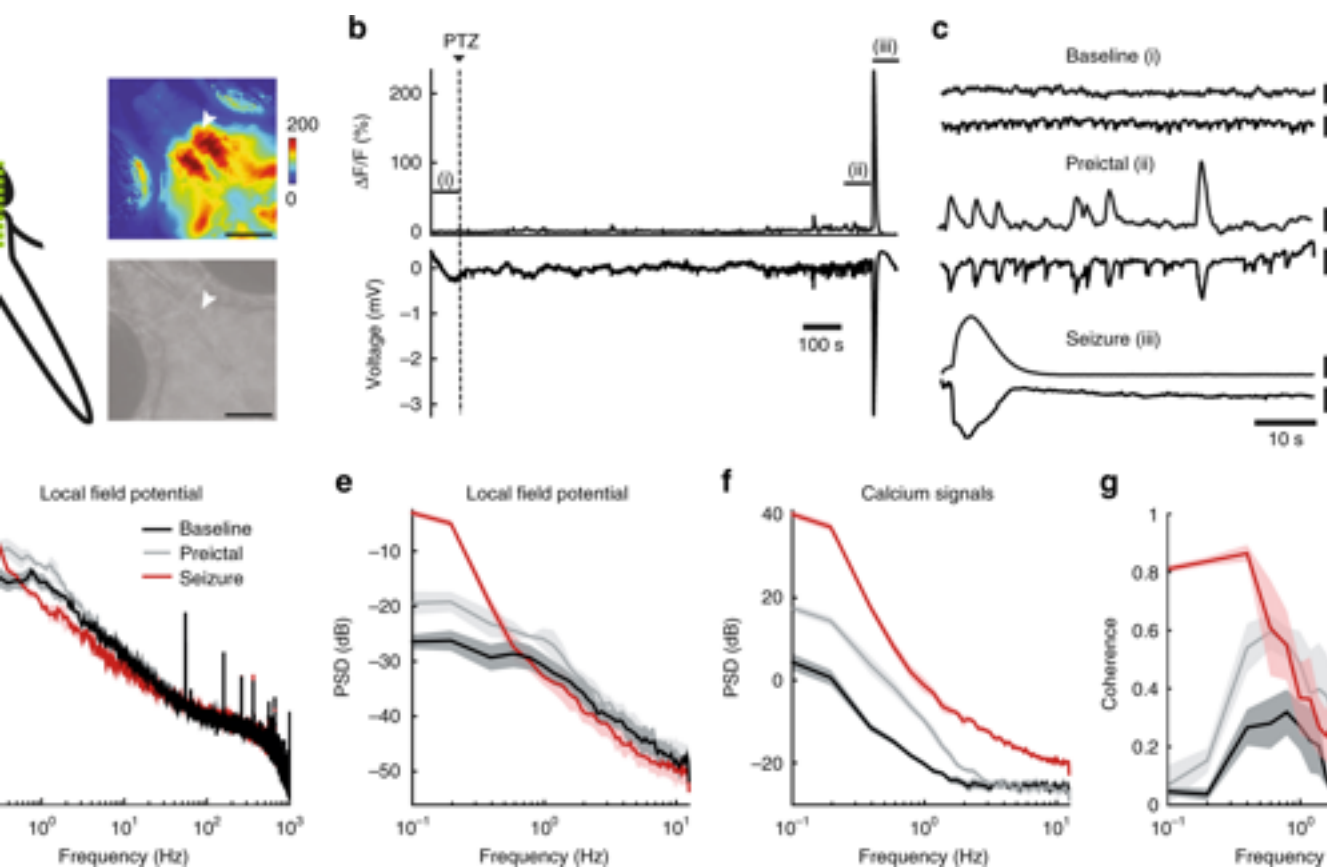


# Neural sensitization improves encoding fidelity in the primate retina

Light intensity on the retina can fluctuate rapidly during natural vision, posing a challenge for encoding visual information. Here, the authors report that mechanisms of sensitization/facilitation maintain the sensitivity of the numerically dominant neural... [show more](#)

- Todd R. Appleby &
- Michael B. Manookin

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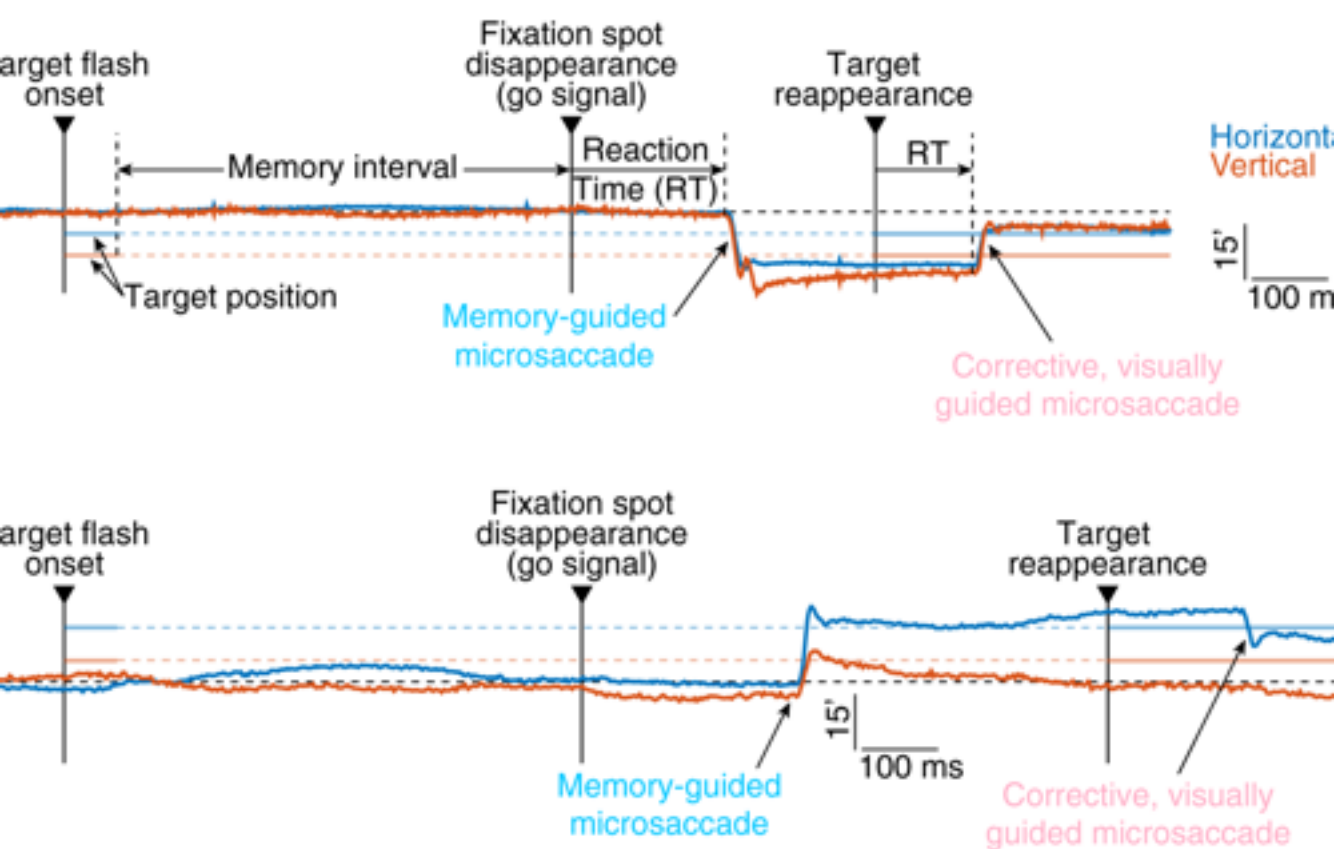


## Glia-neuron interactions underlie state transitions to generalized seizures

During epileptic seizures, neural activity across the brain switches into a hyperactive and hypersynchronized state. Here, the authors report on the role of glia-glia and glia-neuron interactions in mediating the changes that result in the ictal state in a zebrafish model of epilepsy.

- Carmen Diaz Verdugo,
- Sverre Myren-Svelstad ...
- Emre Yaksi

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## Memory-guided microsaccades

Microsaccades are small-amplitude, fixational eye movements that are largely thought to be involuntary. Here, the authors demonstrate that monkeys (and humans) can be easily trained to respond to a remembered target location with a volitional microsaccade, and... [show more](#)

- Konstantin F. Willeke,
- Xiaoguang Tian ...
- Ziad M. Hafed

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