In this study, the authors show that neuronal activity induced by natural exploration, exposure to visual stimuli or optogenetic probe-mediated stimulation can induce double-stranded DNA breaks (DSBs) in neurons. The numbers of these DSBs were aggravated in the presence of amyloid precursor protein and were dependent on extrasynaptic NMDAR activity. Cover artwork by Elsa Suberbielle, Giovanni Maki and Chris Goodfellow. (pp 518 and 613)
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Degeneration and impaired regeneration of gray matter oligodendrocytes in amyotrophic lateral sclerosis
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Spike bursts increase amyloid-β 40/42 ratio by inducing a presenilin-1 conformational change
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Glucocorticoid feedback uncovers retrograde opioid signaling at hypothalamic synapses
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Noradrenaline is a stress-associated metaplastic signal at GABA synapses
W Inoue, D V Baimoukhametova, T Füzesi, J I W Cusulin, K Koblinger, P J Whelan, Q J Pittman & J S Bains

Physiologic brain activity causes DNA double-strand breaks in neurons, with exacerbation by amyloid-β
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Strengthening the accumbal indirect pathway promotes resilience to compulsive cocaine use
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Dopamine restores reward prediction errors in old age
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