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Research

Methods

(continued)

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Cover *Survival kit for resistance.* Spinal muscular atrophy (SMA) is caused by the loss of the ubiquitously expressed survival motor neuron 1 (SMN1) protein and is characterized by the selective degeneration of somatic motor neurons. However, some motor neuron groups, including ocular motor neurons which regulate eye movement, are for unknown reasons resilient to degeneration in SMA. In this issue, to reveal mechanisms of neuronal vulnerability and resilience in SMA, the dynamics of the transcriptome in response to the loss of *SMN1* using RNA sequencing of resilient and vulnerable neuron groups, isolated from a mouse model of SMA, was investigated. This research determined that all somatic motor neurons, independent of their vulnerability, showed a TRP53-mediated stress response. However, ocular motor neurons presented unique disease-adaptation mechanisms that could explain their resilience. The illustration depicts that ocular motor neurons have an intrinsic survival kit which can patch them up and, thus, render them resilient to degeneration in SMA. This unique survival kit contains factors that can also help vulnerable neurons survive the loss of SMN1. (Cover art © Mattias Karlèn, 2020, mail@mattiaskarlen.se. [For details, see Nichterwitz et al., pp. 1083–1096.])