visually deprived animals[10]. A second way is through top-down attentional control from multisensory areas. Multimodal areas aid in orienting attention across modalities through feedback projections[11]. Shared multisensory feedback across the visual and the auditory areas that code for the same supramodal skill could guide cross-modal plasticity across homologous areas as proposed by Lomber and colleagues[3]. These two mechanisms are not mutually exclusive and both may very well be involved at different points in development.

Although we have been talking about sensory cortices in general, one marked contrast between previous work and the current study is the absence of A1 reorganization. Cross-modal reorganization of primary sensory cortex is a well-documented phenomenon, especially in blind individuals. A host of studies document recruitment of the primary visual cortex (V1) in blind individuals in tasks as varied as Braille reading, listening to sentences, tactile discrimination or verbal memory[1]. The status of A1 in deaf individuals remains more controversial. Although all studies report cross-modal recruitment of secondary auditory areas, only one implicates A1 (ref. 12). In one of the rare animal models of cross-modal plasticity, congenitally deaf white cats, there is no sign of cross-modal plasticity in A1 (ref. 13). Lomber and colleagues[3] extend this finding and support the view that, unlike other auditory areas, top-down modulations to A1 are compromised following early deafness, preventing its recruitment in visual functions[14]. Following deafness, A1 may reorganize for other functions, such as somatosensory stimulation, as multisensory integration in A1 seems more weighed toward somatosensory signals[15]. However, evidence from deaf models is lacking so far. Clearly, the similarities and differences between A1 and V1 with respect to cross-modal reorganization remain to be elucidated.

A residual issue concerns the definition of supramodal itself. The enhancement of visual localization in the periphery and motion detection in deaf cats, contrasted with the lack of improvement in other clearly unimodal functions is clear-cut. However, it comes as a surprise, in the supramodal hypothesis, that discrimination of direction of motion and velocity were not enhanced. As an ambulance comes by, its siren provides much information about its direction and velocity, in addition to the visual information obtained from watching it drive by. Direction and velocity of motion are clearly supramodal skills. However, whether in deaf cats or deaf humans, these skills do not reorganize[2]. So, what exactly makes a function supramodal in regards to its potential for reorganization? Whether supramodal functions reorganize after deprivation may depend on the relative quality of the information each modality naturally contributes to that function. Cross-modal compensation may be more likely when the deprived modality is used to convey the most reliable information, as audition does for peripheral localization. Whether motion detection subscribes to that principle remains largely unknown. A prediction from this work is that deaf humans should show an advantage in a motion-detection task; this remains to be tested. Although unanswered questions remain, the supramodal hypothesis provides a welcome, principled approach as future research maps out the factors that foster or limit the ability of the brain to reorganize in the face of sensory deprivation.

COMPETING FINANCIAL INTERESTS
The authors declare no competing financial interests.

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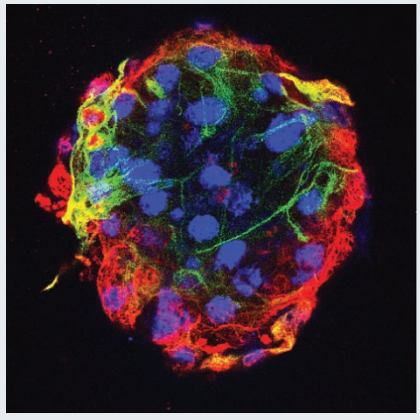
The importance of degradation



Neural stem cells can either self-renew, or differentiate into neurons, astrocytes and oligodendrocytes. How and why this decision is made is unclear. Hoeck *et al.* now show on page 1365 that Fbw7, a component of the SCF ubiquitin ligase complex, is a key regulator of the decision to differentiate. The cells in this neurosphere (red, GFAP; green, nestin; blue, DNA) lack Fbw7 and resisted differentiation even after 5 days in a differentiating medium.

Hoeck *et al.* found that, in the absence of Fbw7, the SCF substrates Notch and c-Jun are insufficiently degraded. Their ensuing accumulation inhibits differentiation and increases apoptotic death of neural progenitors. In the developing mouse brain, lack of Fbw7 increased the number of cells expressing immature progenitor markers and reduced neuron numbers by about half, but had no effect on glial numbers. Loss of one c-Jun allele reduced apoptosis in the Fbw7-depleted developing brain and partially restored cortical neuron numbers, but it did not normalize the number of immature progenitors. Conversely, inhibiting Notch signaling reduced immature progenitor numbers and also partially restored cortical neurons.

Fbw7 initiates the proteasomal degradation of several well-known mitotic molecules in addition to Notch and c-Jun, however none of these other known substrates were dysregulated in the Fbw7-depleted brain. *Fbw7* is an important tumor suppressor gene mutated in diverse cancers. Hoeck *et al.*, however, are the first to show that Fbw7 is also important for the development of the nervous system.

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