Deciphering the roles of prominins in the visual system

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The mammalian *Prom1* gene, which is critical for photoreceptor membrane biogenesis through its interaction with protocadherin 21 (1), has two zebrafish orthologs (*prom1a* and *prom1b*). *In situ* hybridization revealed co-expression of their transcripts in neural tissues and in the outer nuclear layer of the retina where perikarya of photoreceptors reside (2, 3). In contrast to mice, both orthologs were strongly and differentially expressed by retinal interneurons in the inner nuclear layer of the adult fish retina (2). Therein, *prom1a* transcripts were confined to the vitreal side, whereas *prom1b* was detected on the scleral side of the layer harboring bipolar and horizontal cells. We were consequently intrigued by the data of Lu *et al.* (4) indicating that the deletion of *Prom1b* only disrupted outer-segment morphogenesis and that Prom1a had little part in this process.

Actually, both proteins are strongly expressed in the retina, as was shown by immunoblotting (2), and native prom1a is properly *N*-glycosylated (2). Therefore, data obtained with ectopic expression of recombinant prom1a should be interpreted with caution. At least five splice variants of zebrafish prom1a have been identified, and more than one is expressed in zebrafish retina (2). Moreover, some of them may not reach the cell surface, as reported for certain murine prom1 variants (5). Unfortunately, no information is available about the *prom1a/b* sequences (and potential splicing variants) presented by Lu *et al.* (4). To provide new perspectives in this field, subcellular confinement of prom1b in photoreceptors, its potential interaction with protocadherin, and, more importantly, the functional relevance of prom1b deficiency on the visual system should have been shown.

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