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Sommario	Primary cilia are microtubule-based organelles on the apical surface of mammalian cells, and play a crucial role in vertebrate development and tissue homeostasis. Consequently, ciliary defects are associated with human disorders called ciliopathies. This organelle represents an organizing center for signaling pathways. In particular, in vertebrates, the Hedgehog (Hh) pathway controls embryonic development and adult homeostasis using the primary cilium to transduce its signal. Hh components localize to cilia and Kif7, a key player in cilia structure and length, controls the ciliary localization of Hh signaling molecules. Phenotypes associated to Hh signaling impairment are often observed in ciliopathies. Recent studies established a link between ciliary proteins and the Ubiquitin proteasome system (UPS) pathway, however much remains to be understood. The main role of the UPS is to mark proteins for degradation although it also functions in a wide variety of cellular processes. The aim of my PhD project was to investigate the association between cilioproteins and proteasomal functions, with particular emphasis on the cilia- associated OFD1 protein, which is responsible for the rare OFD type I syndrome. The results obtained demonstrate that OFD1 controls proteasomal complex composition through direct binding with proteasomal components (see Liu et al.

	in appendix). Our results also demonstrate a role for Usp14, a deubiquitinating enzyme, in the control of ciliogenesis, cilia length and proper activation of the Hh pathway. We propose a new mechanism by which cilia maintenance and the Hh pathway are regulated by Usp14 via modulation of Kif7 proteasomal degradation (manuscript in preparation). This mechanism may be relevant not only in ciliopathies but also in other pathological conditions associated to Hedgehog signaling defects. Overall our results provide new insight into the spectrum of action of the UPS and may provide novel opportunities for therapeutic intervention in pathological conditions associated to cilia dysfunction.
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