Vitellogenesis in the deep-sea shark Centroscymnus coelolepis

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Résumé / Abstract
At present, information on the reproductive physiology of Centroscymnus coelolepis, which is one of most important and widespread deep-sea shark species, is completely lacking. In this study, we investigated vitellogenesis, a key step in the reproduction biology of fishes. Specimens of C. coelolepis were collected at 2850 m depth in the Western Mediterranean Sea. The size of the collected sharks (range: 35.5-65.0 cm TL) was much lower than those typically reported for the Atlantic and Pacific Oceans. The marked distinctiveness of Mediterranean and Atlantic/Pacific populations was reflected by the achievement of sexual maturity at a smaller size in Mediterranean speci mens. The examination of cytoplasmatic components of oocytes indicated that vitellogenin uptake in the ovary started when oocytes reached 14 mm in diameter. Only reproductive females displayed a significant relationship between plasmatic vitellogenin and gonadal development, suggesting that vitellogenesis in C. coelolepis is a discontinuous process. Oestradiol levels were tightly coupled with gonadal development, underlining the importance of this hormone in controlling vitellogenesis. All these findings suggest that vitellogenesis in this yolk-sac viviparous shark might occur with similar mechanisms of oviparous vertebrates.

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