Is ω6 docosapentaenoic acid an essential fatty acid during early ontogeny in marine fauna?

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ABSTRACT: A thraustochytrid marine protist (*Schizochytrium* sp.) was fed to rotifers (*Branchionus plicatilis*), which in turn, were fed to cod larvae (*Gadus morhua*). Samples of larvae 1 and 11 d after hatch, the rotifer diet, and the enrichment were collected for molecular and isotope analyses of fatty acids. *Schizochytrium* sp. had unusually high proportions of ¤6DPA (8.6% ± 0.6%), which was reflected in the rotifers fed this protist (8.7% ± 0.2%). This fatty acid was also unusually ^{13}C-enriched in both the protists (211.63% ± 0.11%) and the rotifers (-11.83% ± 0.39%). The proportions of ¤6DPA were very low in prefeeding cod larvae but they increased 30-fold by d 11; however, ¤6DPA showed the smallest δ^{13}C change from the protist source. This, combined with reports of significantly higher growth rates in cod and scallops fed diets rich in this fatty acid, provide strong evidence for ¤6DPA being essential at least in the early life stages of these two very different groups.

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