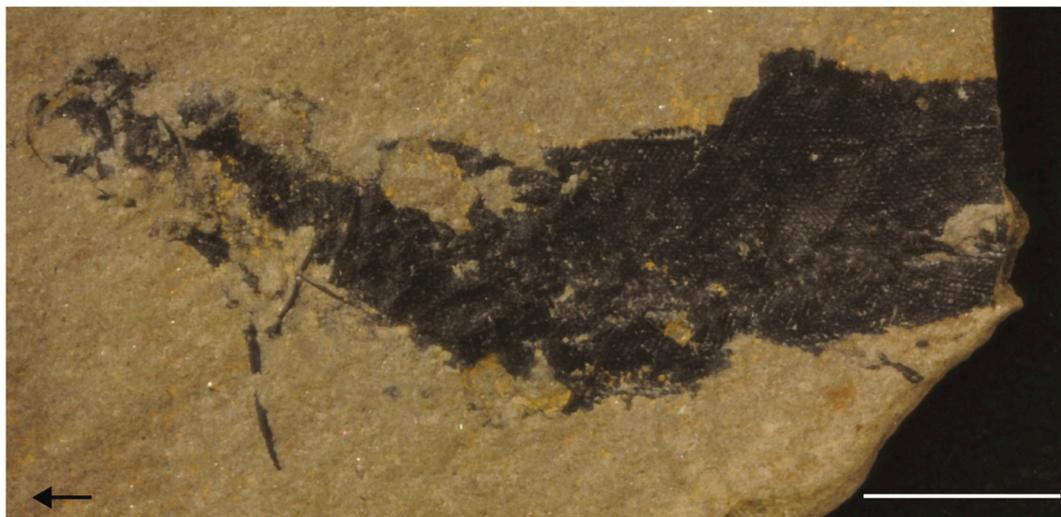
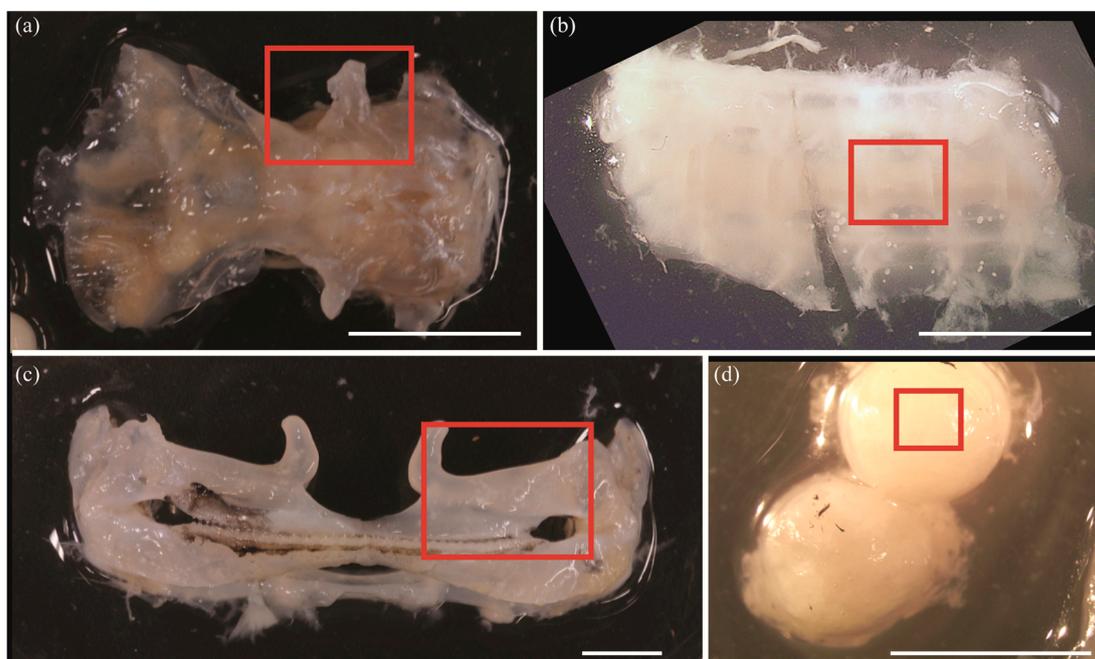


Supplementary Materials: New Insights in the Ontogeny and Taphonomy of the Devonian Acanthodian *Triazeugacanthus affinis* From the Miguasha Fossil-Lagerstätte, Eastern Canada

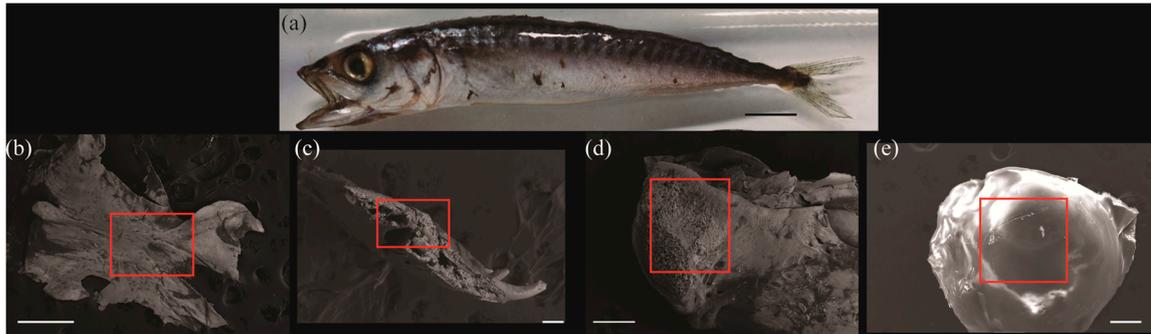
Marion Chevrinai, Etienne Balan and Richard Cloutier



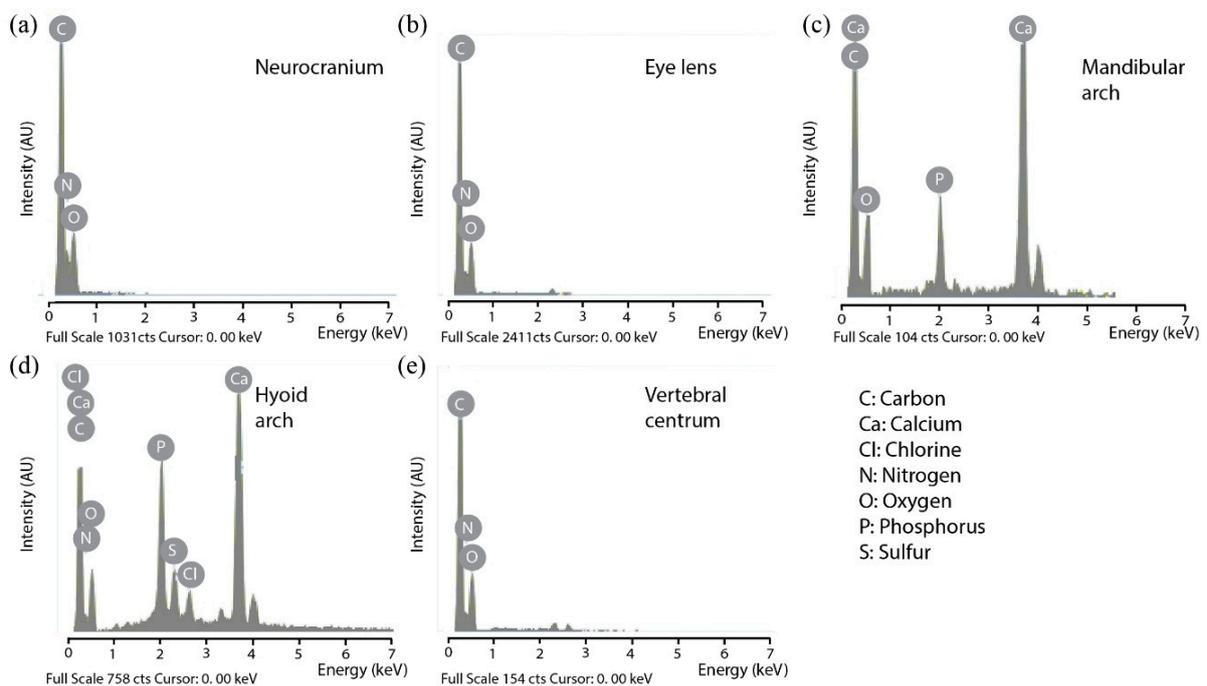
ESM Figure S1. Specimen MHNM 03-1699 of *Triazeugacanthus affinis* used for Fourier transform infrared spectroscopy (FTIR) and X-ray diffraction. Scale bar = 10 mm. Arrow points anteriorly. ESM: Electronic Supplementary Material; MHNM: the Musée d'Histoire naturelle de Miguasha.



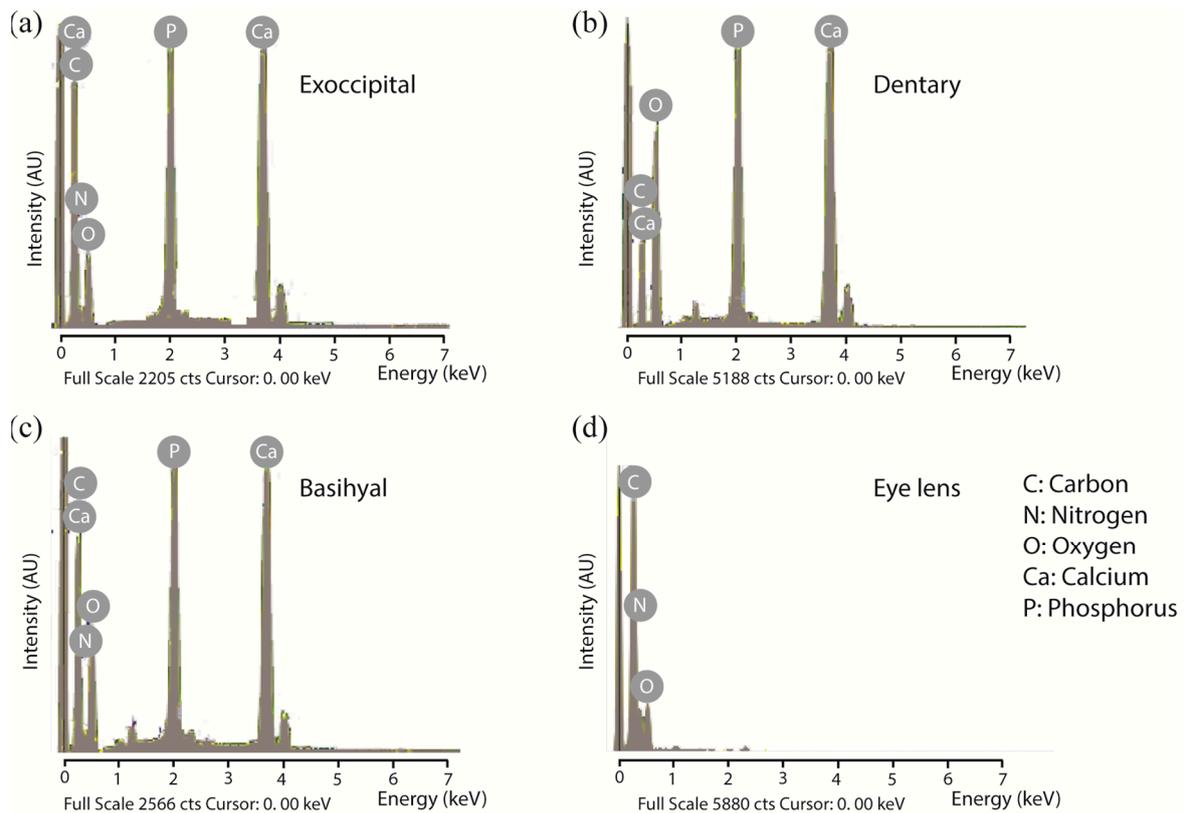
ESM Figure S2. Black dogfish *Centroscyllium fabricii* 0919_247F anatomical elements immersed in water. (a) Dorsal view of the neurocranium. (b) Vertebral centra. (c) Mandibular and hyoid arches. (d) Eye lenses. Red squares represent areas of interest for energy dispersive X-ray spectrometry (EDX) analyses. Scale bars = 10 mm in (a) and (d), and 5 mm in (b) and (c).



ESM Figure S3. Atlantic mackerel *Scomber scombrus* anatomical elements, scanning electron microscope (SEM) images. (a) Juvenile Atlantic mackerel. (b) Exoccipital. (c) Section of the dentary. (d) Basihyal. (e) Eye lens. Red squares represent areas of interest for EDX analyses. Scale bars = 10 mm in (a), 500 μm in (b), 100 μm in (c) and 200 μm in (d), (e).



ESM Figure S4. Representative spectra of *Centrosyllium fabricii* samples using EDX punctual microanalyses. Spectra correspond to six different anatomical elements: (a) neurocranium, (b) eye lens, (c) Meckel's cartilage, (d) hyoid arch, and (e) vertebral centrum. Chemical elements are given only if they represent >1% of the relative composition. Elements were automatically identified and quantified in weight by the INCA software (ETAS, Stuttgart, Germany) and results were normalized to 100%. Because we used an environmental EDX spectrometer, the amount of oxygen is non-significant for our analyses and depends essentially on the vacuum level in the chamber of the SEM.



ESM Figure S5. Representative spectra of *Scomber scombrus* samples using EDX punctual microanalyses. Spectra correspond to six different anatomical elements: (a) exoccipital, (b) dentary, (c) basihyal, and (d) eye lens. Chemical elements are given only if they represent >1% of the relative composition. Elements were automatically identified and quantified in weight by the INCA software and results were normalized to 100%. Because we used an environmental EDX spectrometer, the amount of oxygen is non-significant for our analyses and depends essentially on the vacuum level in the chamber of the SEM.



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