

## ***Interactive comment on “Temperature and UV light affect the activity of marine cell-free enzymes” by Blair Thomson et al.***

### **Anonymous Referee #2**

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This is an interesting paper, but a bit overly simplistic and seems to miss much of its potential. The fact that enzymes are affected by UV should not be surprising (they are complex organic molecules and the literature is replete with photochemistry). What are the structures of these enzymes? Since the result is different, what's different about the structures of the enzymes that suggests differences in sensitivity to UVR?

Nowhere do the authors address whether the effect is on the enzyme or perhaps the substrate? What's the structure of the substrates, will they absorb UV?

The exposure methodology is unclear, the samples were placed in glass vials but were they irradiated through the glass (blocking much UV) or left open and irradiated from the top?

Spectrum of the lab light source is very different from the spectrum found in seawater,

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lamps are a necessary evil, but a bit over simplification to say they had environmentally relevant irradiance. Why not do the incubations in situ in UV transparent containers (quartz, teflon, polyethylene?)

Finally, the discussion misses some classic literature - there were numerous papers published in the 80's from John Paul's lab on extracellular nucleases (DNAse)

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