

Re: There's something fishy about human brain evolution

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 - *Date:* Thu, 23 Feb 2006 19:27:33 -0700
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On 23 Feb 2006 14:05:41 -0800, "nickname" <alas_my_loves@xxxxxxxx> wrote:

r norman wrote:

There is one species of frog, *Rana cancrivora*, that can tolerate seawater. It uses urea as part of the mechanism to maintain osmoregulation in such circumstances even though its skin is permeable. That is the trick used by sharks, and the coelocanth, but nowhere else among tetrapods as far as I know.

Iodine is widely found in soil and is available in plants grown on such soils. Iodide ions in seawater (and soil) gets oxidized to iodine which is volatile and is found in air (about 0.7 micrograms per cubic meter). It then rains down to be absorbed by soil. There are areas where the soil is deficient in iodine/iodide and in those regions, animals can suffer from thyroxine deficiency. Severe maternal iodide deficiency does cause poor fetal growth and brain development.

I didn't know of the marine frog. Would you elaborate a bit on the function of urea in it?

Reason for request: IMO rather than primarily "waste products, heat regulators, or friction enhancers" as I've seen written, I think the primary function at least "originally" of eccrine sweat (slightly saline water), sebum (acidic oil), and urea (slightly alkaline?) was as anti-pathogenic skin covering, especially in the presence of sunlight (UV/IR), thus protecting against a diverse array of microbes, some of which were tolerant of acid but intolerant of salt (fungal), others tolerant of salt but intolerant of acid (algae), etc. No doubt this is known, but I haven't seen anything written that includes the combination of these protectants working together with sunlight to shield the human body, largely effective in seaside and freshwater environments, unless skin is penetrated or wounded, or the pathogen enters via an alternate route (orifices).

This shield of overlaying grids on human skin includes:

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1. dead proteinacious squamae (continuously shed skin flakes physically
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