Re: Article: Parasite genes reveal long sexual history

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From: Perplexed in Peoria (*jimmenegay_at_sbcglobal.net*)
Date: 01/31/05

Date: Sun, 30 Jan 2005 22:17:20 −0500 (EST)

"William L Hunt" <wlhunt@earthlink.net> wrote in message news:ctjg4kqcp1@darwin.ediacara.org...
> On Sat, 29 Jan 2005 13:59:43 −0500 (EST), "Perplexed in Peoria"
> <jimmenegay@sbcglobal.net> wrote:
>
> >
> >"Robert Karl Stonjek" <rstonjek@bigpond.net.au> wrote in message
news:ctfbc4$2eg5$1@darwin.ediacara.org...
> >> Giardia Bares All: Parasite genes reveal long sexual history
> >> Christen Brownlee
> >>
> ...
> [snip]
> ...
> >PS: My joke above about a metazoan common ancestor for protozoa
> >may not be as silly as it first seems. Substitute "colonial"
> >for "metazoan" and the idea begins to make sense. And what is
> >the word for multinucleate cells − many nuclei sharing a common
> >cytoplasm?
> I think both multinucleate or polynucleate are used.
>
> > It would surprise me not at all if we were to find
> >THAT morphology somewhere in our family tree.
> In fact Giardia intestinalis itself is binucleate (two nuclei) and
> polyploid. The ploidy of each nucleus cycles between 2 and 4 N.
> Whether this has anything to do with it being asexual is still
> unknown.
> William L Hunt
>

Well, that IS interesting! It suggests to me that the "sex" (which we now suspect Giardia of practicing) may be limited to nuclear processes − a kind of hermaphroditic selfing that doesn't involve any commerce at all across the cytoplasmic membrane.

My implicit intuition is that modern sexual processes, involving

coordination between nuclear envelope and plasma membrane events, originated with some purely nuclear processes. The coordination with the plasma membrane processes came later.

Giardia may be more interesting than I thought! I have a prejudice that parasites just cannot be primitive − even weird, early−branching ones like Giardia. Perhaps I will have to set that prejudice aside in this case.

Incidentally, how does one calculate Hamilton's r (IBD) for offspring produced by selfing? It seems to me that r=1 between the parent and offspring. The odd thing is that reproduction by mitosis and reproduction by selfing give the same maximal value for r, even though offspring is genetically identical to the parent in the first case, and very different in the second case. Furthermore, two offspring produced independently by selfing from the same parent will only have r=0.5 between them, even though they both have r=1.0 wrt the parent. Is that right?