Re: Species Resurrection

Source: http://sci.tech−archive.net/Archive/sci.bio.evolution/2007−12/msg00172.html

- *From*: dk@xxxxxxxxxxxxxxxxxxxxxxxxx (DK)

- *Date*: Sat, 22 Dec 2007 22:24:54 −0500 (EST)

Tim Tyler <seemysig@xxxxxxxxxxxxxx> wrote:

> DK wrote:
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> > Tim Tyler <seemysig@xxxxxxxxxxxxxx> wrote: [...]
> >
> > −−> http://timtyler.org/species_resurrection/ <−−
> >
> > The essay starts:
> >
> > Resurrecting species that had previously been thought extinct
> > now seems
> > to be quite technically possible.
>
> Not a chance. All modern technologies require you to come up,
> as a bare minimum, with chromosomes, not just with DNA sequences.
> That means all the DNA methylation, all the histones and auxillary
> proteins present in the right places in right amounts all with proper
> modifications. No way.

Well it hasn't been done /yet/.

My piece was triggered in part by a recent news story:

``Scientists in Maryland have already built the world's first
entirely handcrafted chromosome ? a large looping strand of
DNA made from scratch in a laboratory, containing all the
instructions a microbe needs to live and reproduce.

In the coming year, they hope to transplant it into a cell,
where it is expected to "boot itself up," like software
downloaded from the Internet, and cajole the waiting cell
to do its bidding. And while the first synthetic chromosome
is a plagiarized version of a natural one, others that code
for life−forms that have never existed before are already

> under construction.
>
> http://www.dentonrc.com/sharedcontent/dws/dn/latestnews/stories/121707dnnatsynbio.2bf46e0.html
>
> ....as well as by the sequencing of the genome of one extinct species.

Sequencing is trivial in comparison to expression.

Look, my point was that your comment "quite technically possible" was clearly wrong. You list a bunch of extinct mammals and as an illustration of that this idea is possible provide very simple bacterial chromosome experiment that wasn't even performed.

You know that there is huge difference between bacterial chromosome and eukariotic genome. You know there is a big difference between "quite possible" and "they hope" or "it is expected".

> Species resurrection now looks to be pretty clearly in the forseeable future −

Future − maybe, foreseeable − hardly.

> and that's interesting not least of all
> because Homo floresiensis and Neanderthal man may well prove
> to be within reach:
>
> ``Unleashing a new kind of DNA analyzer on a 38,000−year−old
> fragment of fossilized Neanderthal bone, scientists have
> reconstructed a portion of that creature's genetic code −
> a technological tour de force that has researchers convinced
> they will soon know the entire DNA sequence of the closest
> cousin humans ever had."
>
> http://www.washingtonpost.com/wp−dyn/content/article/2006/11/15/AR2006111501042.html

Once again, this is a huge advance and all that. Maybe, just maybe, most of the Neanderthal genome will one day be sequenced.

But the devil is in the details. And thus far the details are: 1) There is a lot of disagreement on what is signal and what is contamination or sequencing errors, 2) only small bits of few individual genes had been positively identified, 3) chemistry of DNA preservation sets its limits −

if there is no DNA to begin with, sequencing it is gonna be problematic.
4) getting non−coding sequences right is a lot more trouble than
known ORFs.

DK

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