

New finding about the bane of parents' lives -- head lice

January 27 2009

(PhysOrg.com) -- Head lice are a challenge for parents of primary-school aged children all around the world, including Australia.

But a new genetic research finding about head lice has scientists scratching their heads in amazement at the miracle of nature.

"It will be of little comfort to parents but head lice have the most highly evolved mitochondrial chromosomes of all multi-celled animals," said Associate Professor Stephen Barker of the Parasitology Section, School of Chemistry and Molecular Biosciences, at The University of Queensland.

Almost all multi-celled animals, including humans, have one large mitochondrial chromosome, but head lice have 12 or more mini-chromosomes.

What's more, parts of these 12 mini-chromosomes join to one another for a while only to split again later.

"This is extraordinary," Associate Professor Barker said.

These mini-chromosomes "seem to sit at the summit of mitochondrial chromosome evolution," his colleague, Dr Renfu Shao said.

"So the mitochondrial chromosomes of head lice, in this sense, are extreme genomes," he said.

The lice that infect the nearest living relatives of humans, the chimpanzee, also have these extreme genomes.

Associate Professor Barker said the researchers were now examining the implications of the work for knowledge of the biology of head lice.

These discoveries will be published in a special issue of the journal *Genome Research* to mark the 200th anniversary of the birth of Charles Darwin on February 12.

The paper had three authors: Dr Renfu Shao (The University of Qld), Professor Ewen Kirkness (The Craig Venter Centre) and Associate Professor Stephen Barker (The University of Qld).

Provided by University of Queensland

Citation: New finding about the bane of parents' lives -- head lice (2009, January 27) retrieved 6 May 2024 from <https://phys.org/news/2009-01-bane-parents-lice.html>

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