

Re: Article: Birds of a feather not related to each other

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From: Peter F (effectivespamblock_at_ozemail.com.au)

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"Perplexed in Peoria" <jimmenegay@sbcglobal.net> wrote in message
news:cq1u6f\$2csi\$1@darwin.ediacara.org...

>

> "Peter F" <effectivespamblock@ozemail.com.au> wrote in message
news:cq0b24\$1rmc\$1@darwin.ediacara.org...

> > ...

> > 2. that the seven or so histones (compared to the four amino acids of DNA)

> > of chromatin (formerly mainly thought to be a mere packing-material for DNA)

> > also lend and important by "imprinting" heritable hand to how we become and be

> > how we are.

> > ...

>

> Peter,

>

> I think you mean the four "bases" of DNA, not the four "amino acids".

Thanks!

(More shame on sloppy me. :->)

> Also,

> I think you should be careful in comparing four bases to seven histones. The

> bases constitute an "alphabet" for carrying symbolic information. Replace

> an instance of one of the bases with another, and you have a different, garbled

> message, but one that still functions as a message. The seven histones are

> different – each has its own structural role. Replace one with another and

> you don't have a modified message – you simply have a mess.

Maybe it seemed that I equate the respective roles of DNA and histones – but I don't.

However, I still like the thought-provoking effect of the expression "histone code".

It of course is provocative precisely because it evokes association to
what DNA does. ;)

Don't know who invented it but I saw it for the first time in New Scientist.

- > *Whatever role the histones play in modulating and organizing gene expression*
- > *in eukariotes, they don't seem to carry information of their own.*

Even if that is perfectly true, the role that these 7 (or it could be 8) histones seems to play suggests that it remains for us to discover still more stupendous subtlety and intricacy in how we 'become phenotyped'.

Environmental influences (meddling milieu factors :) do "interface" directly and indirectly with DNA.

Indirect such interactions don't just take place via RNA/m-RNA, endocrine hormones/neurohormones, and neuro modulators/transmitters;

They also occur via a phenomenon such as that the long strands of the DNA double helix molecule wrap around "balls" of histones.

The rest of what I have read (and have bet on to be more true than not) of what expert investigators have observed and learnt, is approximately this:

"Tails" (composed of histones) protrude from these balls (nucleosomes);

The exact composition (which histones) of these tails can (hypothetically or very plausibly) influence whether the genes that wrap around each "soma" get to be expressed or not (and perhaps how much?).

Some "histone coded" ;-) nucleosome tails promotes methylation and thus serve to block transcription of genes (into RNA and then proteins); Others mediate gene-expression by promoting acetylation and phosphorylation.

I have been led to the conclusion, by different reminders (admittedly I got them all through what I have read), that there exist many indicators in the animal kingdom of a predictable epigenetically effected plasticity of the phenotypic patterning of both plants and animals.

In the same way, 'I've been led to like to think' that genomic imprinting and closely related other forms of epigenetic heritability exists; And that it all underpins a not quite (but sort of ;) lamarckian subset (and reproducible repertoire) of "genophenotyping tendencies".

Here is one tiny specific example (of many possible) of what I have been led to believe and refer to:

(By a book authored by Richard de M Studdert I was told that:)
Domestic pigs will after just a few generations (don't exactly how many) visibly revert to a phenotype that is fairly close to that of their wild-pig ancestors, *if* they are let loose to fend for themselves in a suitable enough natural environment.

The "histone code hypothesis" suggests one possible mechanism behind such and such-like changes.

Now for a dizzy (it is late here) ignorant (or half-informed) speculation of mine:

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Perhaps can not just the tails of the histones in chromatin, but also other and bigger portions of the entire "histone complex", interface with the presence of certain environmental features; The gene expression affecting, and possibly in some way specifically environmentally influenced, 'self-shape changing' (or folding) of chromatin might not be 'completely forgotten' from one generation to the next. But it may instead reinforced and pushed in one phenotyping direction or the other. And it may thereby also acquire some degree of 'heritability inertia'.

With regards,

Peter

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P.S.

I don't mind if someone that is sincere, intelligent, and well-informed, (like you seem to be) would pull some of my self-spun philosophical wool off from the inside of my head.

In respect of the serious core of EPT I don't believe there is any such off-pullable wool, but other by me presume to be rational and right aspects of what I spout may well deserve to be pulled into rationally philosophical and science-aligned line.

After having I'd thus been made to loose a blissfully illogical illusion, or after having been 'g I hope to quickly recover.

(And I might even turn-out grateful.:)

D.S.