More junk reclaimed

Don Batten

Large sequences of DNA called introns have been called 'junk' or 'leftovers of evolution'. Introns are sequences of DNA that lie within a gene but do not code for protein. During the production of a messenger RNA (mRNA) template, from which a protein is made, the introns are edited out in a process called *splicing*. A complex molecular machine called a spliceosome does this editing.

Walkup reviewed the concept of 'junk DNA' and pointed out the growing body of evidence that introns, as well as other DNA once reckoned to be 'useless', actually play important roles in organisms.[1] For example, the mRNA can be edited in different ways to create different proteins from the same gene—for example, by joining together the exons, or protein coding sequences, in different ways. Some introns are involved in gene regulation; others even have other genes embedded within them, while the evidence is mounting for a role in chromosome structure. More and more functions for introns are being discovered.

Now researchers have found that an intron mutation causes the disease *ataxia-telegiecstasia*.[2] Deletion of just four nucleotide 'letters' from the middle of a 69 nucleotide intron disrupts the splicing process. The intron is not spliced out, so the final, edited, mRNA has the extra sequence incorporated, resulting in the manufacture of a defective protein. Further analysis revealed that the four nucleotide sequence removed was crucial to the spliceosome recognizing the intron so that it could be snipped out. This represents a new type of binding site for spliceosome action and shows how the nucleotide sequence in introns can be quite severely constrained (introns have been used in molecular phylogeny studies supposedly because they are free to mutate without constraint).[3]

The discovery further erodes the claim that introns are 'junk'. Introns comprise up to 15% of human DNA,[1] and supposedly only 1.5% of the DNA is exons (protein coding). So recognition that introns are not 'junk' could impact the faith of the many in the adequacy of mutations to generate the amount of information in human DNA. To this must be added the accumulating evidence for the functionality of such things as the large amounts of repetitive sequences. Of course there are likely to be some junk sequences. What we see today has deteriorated since Creation. Things are falling apart and the hundreds of human diseases now attributed to mutational errors[4] underline the truth of the Fall.

References

1. Walkup, L.K., Junk DNA: evolutionary discards or God's tools? *CEN Tech. J.* **14**(2): 18–30, 2000.
2. Pagani, F., Buratti, E., *et al*., A new type of mutation causes a splicing defect in *ATM*, *Nature Genetics* **30**(4):426–429, 2002.
3. Batten, D.J., Y-chromosome Adam. *CEN Tech. J.* **9**(2):139–40, 1995.
4. The current count for diseases caused by mutational errors is 1,085. McKusick, V.A., Online Mendelian inheritance in man, McKusick-Nathans Institute for Genetic Medicine, Johns Hopkins University (Baltimore, MD), and National Center for Biotechnology Information, National Library of Medicine (Bethesda, MD), <www.ncbi.nlm.nih.gov/Omim/Stats/mimstats.html>, 12 June 2002.

The uniformitarian mystery of radiolarian chert

Michael J. Oard

The more I learn about geology, the more often I find that present processes do not account for the sedimentary rocks laid down in the past. The concept that only processes observed today should be used to explain the history of the rocks is the geological doctrine of uniformitarianism. This is often summarised by the slogan: 'The present is the key to the past'.

It is upon this doctrine, rigidly held, that practically all geological data has been interpreted. As if by a single pen stroke, this doctrine eliminates from consideration the very possibility of the global Flood recorded in the Bible. It is true that in recent years the doctrine has been modified to allow an occasional catastrophe, such as the Lake Missoula flood[1] and an asteroid impact that supposedly wiped out the dinosaurs.[2] But basically the doctrine continues to undergird mainstream geological thought.

Ancient and modern sandstones

At the same time, research on the rocks reveals that uniformitarianism is a poor organising principle and often invalid. For instance, sandstones, which make up approximately 20% of the sedimentary rocks on the Earth, are consistently different from modern sand deposits.[3] As an example, 'Pure quartzites (orthoquartzites) are common in the older record but none seem to be forming today'.[4] Quartzite is metamorphosed sandstone.

Furthermore, in the modern world sand generally accumulates in linear deposits while ancient sandstones form very large sheets:

> 'It is noteworthy that the most common sites of sand accumulation in the modern world are linear (beaches and rivers); yet most sands of the past form extensive