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The post-Darwinist concept of species: a place for Lamarck?

I welcome the Comment by Didier Raoult (Jan 9, p 104),¹ which proposes the post-Darwinist concept of the evolutionary pathway as a rhizome instead of a tree, with inheritance occurring not only vertically but also laterally. He rightly addresses how the genomic revolution has forced us to reconsider the way we describe evolution.

Perhaps one of the most important unresolved issues in the study of species evolution is the adaptation to a changing environment, bringing all the evolutionary changes seen in a short period.² Epigenetics could explain this phenomenon in eukaryotic species including human beings. Most epigenetic changes occur within the course of one individual organism's lifetime, but, in recent investigations, epigenetic changes were found to be inherited from one generation to the next:^{3,4} the inheritance of acquired characteristics of Lamarck. Of course, Lamarckism's examples of giraffes stretching their necks to reach leaves high in trees, gradually lengthening their necks, and then having offspring with slightly longer necks only shows that generational change is not a simple thing.² However, it has been shown^{4,5} that the epigenetic marks by DNA methylation can be inherited across multiple generations in mice, implying that not only prenatal maternal but also grandmaternal exposures to methyl donors may influence subsequent gene expression in the offspring.

I propose that our current understanding of epigenetics could partly reinstate Lamarck in the light of a post-Darwinist model of evolution.

I declare that I have no conflicts of interest.

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Governments should reduce prices before rationing care

Mexico is not alone in being forced to implement a suboptimum pneumococcus vaccine strategy owing to the high cost of pneumococcus vaccine (PCV-7; Jan 9, p 114).¹ South Africa's roll-out of PCV-7 vaccination has been limited in some provinces and there is no nationwide catch-up strategy for older children.²

Public health officials faced with tough decisions to ration essential care in the face of scarce resources must first of all pursue all policy options to reduce prices. This approach is exemplified in the field of HIV/AIDS. Initially, policy advisers aimed to prioritise prevention over treatment because the former was argued to be more cost-effective. But governments and activists worked together to make use of market competition to bring down the price of treatment such that a comprehensive strategy that included both prevention and treatment could be provided.³

In the case of pneumococcal vaccination, Mexico's decision to provide a suboptimum PCV-7 dosing schedule was based on a price of US\$26 per dose. By contrast, Brazil has negotiated a deal to access PCV-10 for \$17 per dose, and this is expected to fall to \$7 per dose over time.⁴ There are indications that PCV-7 could be manufactured, at profit, for around

\$5 per dose. Developing country governments should take Brazil's lead by negotiating fairer prices and exploring options for local production before compromising public health objectives.

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