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Letters

Evolution: Not Essential for Modern Medicine

This is a response to an Opinion article by Stephen Schiffer entitled *Evolution: The Founding Principle of Animal Models of Human Disease,* (Comp. Med., vol. 52, number 4, p. 305-306, 2002).

The main premise is that similarity proves common descent and this is somehow essential for modern medicine. However, this is equally well explained by a single common design as defined by the theory of intelligent design and being agnostic regarding the source of design (1). If everything were different, we might conclude there were many designers instead of one. There are differences in particular in how common structures develop to thwart evolutionary explanations. For example, the human hand and foot develop by different mechanisms than the frog foot (2, 3).

Regarding evolutionary medicine, it is vacuous to claim that we cannot treat a cough properly unless we realize that it is an evolutionary adaptation to expel particles from the trachea. In fact, it is possible to treat it equally well by regarding it as a designed mechanism to do just that.

Another example of evolutionary emptiness comes from mouse genome research where researchers were surprised to find that so-called junk DNA almost certainly has an important role, because 5% of the human and mouse genome is almost identical. Evolutionists call the almost identical sequences "highly conserved" because they interpret the similarities as arising from a common ancestor, but with natural selection eliminating any deviations in this 5% since precision is essential for it to function properly. One would wonder about a mechanism that relies on chance to provide this precision.

The cited figure of 98.7% similarity between ape and human DNA has now been discredited (4), but even if it were correct, it would still mean 1.3% difference. Since humans have 3 billion base pairs of information in the genome this amounts to 39 million base pairs of information (13 encyclopedia-sized books) that evolution has to generate by chance mutation and selection (5).

A growing number of biologists and scholars today are observing an apparent design in nature that may be a genuine organizing intelligence that is not the product of natural selection acting on random variations (6, 7).

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Comment on "Barrier Facilities for Transgenic Rodents in Academic Centers—A Two-Edged Sword"

In his Opinion article (Comp. Med., vol. 52, number 5, p. 397-402, 2002), Dr. Jon Gordon expressed some interesting views regarding barrier housing for genetically altered mice (1). We disagree with much of his reasoning; however, our purpose is not a point-by-point critique, but to re-emphasize some key issues. We say "re-emphasize" because these matters previously have been addressed by others, but we think it is important to remind ourselves now and then to continue trying to improve communication with our non-veterinarian investigator colleagues.

First, discussions of rodent health maintenance policies and procedures often are clouded by deficiencies in communication. For example, terms such as "barrier" and "conventional" commonly are used as if they had standard, universally accepted definitions, which they do not (2, 3). "Conventional" can mean use of open cages, unrestricted introduction and interchange of mice, uncontrolled traffic of people and equipment, and no health monitoring. This might seem acceptable to investigators unfamiliar with rodent infectious diseases, but one has only to recall how prevalent such diseases once were among laboratory rodents to predict the results if vendors and biomedical research institutions abandoned basic disease prevention measures. In today's research institutions, the risks from overt and opportunistic pathogens would be greatly amplified by the huge numbers of genetically engineered mice now in use, many of which have mutations with potential effects on disease resistance.

We agree that if barrier housing is used, the need should justify the cost and inconvenience, but Dr. Gordon doesn't describe barrier housing at his institution, nor does he address the needs of other investigators' research. "Barrier" commonly is used in the rigid and restrictive sense, but in the general sense means a combination of procedures and facilities features designed to control the microbiological status of the animals within, without specifying those procedures and features. Even basic preventive measures constitute a form of barrier, and, if accompanied by careful health monitoring, can be quite effective without exces-