



CREATION^{In} The CROSSFIRE

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And there was evening and there was morning, the sixth day. Thus the heavens and the earth were completed, and all their hosts... And the water prevailed more and more upon the earth, so that all the high mountains everywhere under the heavens were covered. Gen 1:31-2:1; 7:19

The Next Meeting: April 25, 2009 at 7 PM.

Apr 25: Doug Hamp returns to talk about dinosaurs among men, hosting a one hour investigative documentary examining ancient artists' drawings of dinosaurs in Peru and around the world.

May 23: Dave Philips, "Design in Porpoises." Also, he will present his refutation of whale evolution.

Natural Selection via Malaria

by Jon Covey, BA, CLS(ASCP)

I worked 25 years in clinical laboratory science, mainly in hematology. One area that fascinated me was that of hemoglobinopathies, diseases related to hemoglobin abnormalities, such as the thalassemias and sickle cell diseases.

I examined at least 125,000 blood smears doing white cell differentials (counting the different types of white cells) and describing red blood cell morphology for the doctors. As I did those differentials, I always looked for signs of parasites even though seeing the actual organisms was rare. In our country the most frequent blood parasite is *Plasmodium vivax*, although worldwide other *Plasmodium* species dominate.

Malaria Worldwide

- Forty-one percent of the world's population live in areas where malaria is transmitted (e.g., parts of Africa, Asia, the Middle East, Central and South America, Hispaniola, and Oceania).
- Each year 350–500 million cases of malaria occur worldwide, and over one million people die, most of them young children in sub-Saharan Africa.
- In areas of Africa with high malaria transmission, an estimated 990,000 people died of malaria in 1995 – over 2700 deaths per day, or 2 deaths per minute.
- In 2002, malaria was the fourth cause of death in children in developing countries, after peri-

natal conditions (conditions occurring around the time of birth), lower respiratory infections (pneumonias), and diarrheal diseases. Malaria caused 10.7% of all children's deaths in developing countries.

- In Malawi in 2001, malaria accounted for 22% of all hospital admissions, 26% of all outpatient visits, and 28% of all hospital deaths. Not all people go to hospitals when sick or having a baby, and many die at home. Thus the true numbers of death and disease caused by malaria are likely much higher.

The above information is from the Centers for Disease Control.

Creationists accept natural selection as a conservative principle. Natural selection encompasses the idea of surviving and reproducing. In this article, I present some examples of beneficial mutations preserved by natural selection. We reject the evolutionary belief that natural selection has guided descent from the first "simple cell" to modern organisms by preserving long, stepwise series of mutations.

Herbert Spencer coined the phrase "survival of the fittest," which Darwin used in his 5th edition of *On the Origin of Species*. Of course, not everything that is fit reproduces, including me, although my brothers and sister did. Note how the Audersirks' *Biology* defines natural selection as a conservative process:

"Organisms that best meet the challenges of their environment will survive to leave the most offspring. The offspring will inherit genes that made their parents successful. Natural selection will thus preserve genes that help organisms to flourish in their environment and discard the rest."

The Duffy antigen and malaria

In the blood bank, we are concerned about red blood cell antigens, such as ABO, Rh, and many others. The

Duffy antigen is one of those that can cause trouble for the recipient.

Malaria Journal reported that the parasite *Plasmodium vivax* has been the most common human malaria parasite in the Brazilian Amazon region over the last seven years. Humans have innate resistance to malaria infections if their red blood cells are missing the Duffy blood group antigen FY.

In 2006 *Hematology* researchers reported that very important progress has been made over recent years in understanding the Duffy blood group system and its complexity. They said that the Duffy blood group antigen serves not only as blood group antigen, but also as a receptor for *Plasmodium vivax* malaria parasites.

Plasmodium vivax (*P. vivax*) causes approximately between 70 and 80 million cases of malaria per year and is the most amply distributed human malaria in the world. Individuals with the Duffy-negative phenotype are resistant to *P. vivax* invasion.... Despite *P. vivax* being widespread throughout the tropical and subtropical world, it is absent from West Africa, where more than 95% of the population is Duffy negative.

Recently, these researchers realized this point mutation confers a degree of protection against a vivax infection.

One would wonder why most of the populations in the world's malaria-ridden regions are not Duffy negative. This simple but effective point mutation seems to be a ripe candidate for natural selection. If I lived in a malarial region, I would want two mutations if I could pick them, sickle cell trait and Duffy negativity.

Hemoglobin notation

Many hemoglobin mutations involve the two beta chains of hemoglobin. A normal chain is noted as HbA, which stands for hemoglobin A. HbS means hemoglobin S, the sickle cell hemoglobin. Since there are two beta chains, HbAA denotes normal hemoglobin, HbAS indicates sickle cell trait, HbSS is sickle cell disease.

HbAS, falciparum and natural selection

According to Anopheles.org, sickle cell trait (HbAS) is a prime example of natural selection. The protective effect of HbAS was remarkably specific for *Plasmo-*

dium falciparum malaria, having no significant impact on any other disease. The Journal of the American Medical Association reports that falciparum malaria causes more than 1 million cases of childhood mortality annually, and may therefore be most relevant to natural selection.

Children with the sickle cell trait are healthy, often robust, and have partial protection from malaria. The Centers for Disease Control reported:

“Our birth cohort studies (Asembo Bay Cohort Project in western Kenya) conducted in collaboration with the Kenya Medical Research Institute allowed us to investigate this issue in depth. This study allowed us to determine that sickle cell trait provides 60% protection against overall mortality and most of this protection occurs between 2-16 months of life before the onset of clinical immunity in areas with intense transmission of malaria.”

Those with sickle cell disease (HbSS) have a poor prognosis and without ongoing medical intervention they seldom survive past their 30th birthday. They are usually in no shape to reproduce. Sex could be lethal all by itself for such individuals because any intense, strenuous activity that caused the slightest transient hypoxia could precipitate a sickle cell crisis.

Hemoglobin E and falciparum malaria

Another interesting fact concerning natural resistance to malaria due to a mutation is that of hemoglobin E (HbAE), the world's third most prevalent hemoglobin. HbEE causes no serious clinical symptoms.

A report by *The American Journal of Human Genetics* says that carriers of hemoglobin E enjoy some protection against *P. falciparum* malaria, the most deadly type.

The journal reporters remarked:

Considering the geographical specificity and the high population frequency of Hb E, a mutation causing Hb E appears to have occurred in Southeast Asia, and the frequency is likely to have increased because of positive selection against malarial infection.

The “positive selection” is an expression of natural selection. The natural selection is the limited protection for the especially deadly falciparum parasite. This malaria is also called Blackwater Fever because the

falciparum parasites destroy huge numbers of red cells in the blood, causing massive intravascular hemolysis that releases large amounts of hemoglobin in the urine, making the urine appear nearly black.

In *Medscape Today* (*WebMD*) they suggested this:

...malarial organisms are perhaps also responsible for benign red cell abnormalities, but in a much more indirect fashion. That is, malaria has been such a widespread disease entity that it has probably served as a significant selection pressure for many hemoglobinopathies, red blood cell cytoskeletal disorders, and red blood cell membrane diseases that are commonly seen in populations where malaria is endemic. These red blood cell disorders include sickle cell trait, the thalassemias, Hemoglobin C disease, and Hemoglobin E disease, all of which result in abnormal hemoglobins that fail to sustain the intra-erythrocytic stage of malarial organisms.

In other words, the malaria parasite is the environmental stressor that causes the natural selection of these diseases to persist in human populations.

There is some equivocation over whether HbE protects individuals from falciparum malaria. Some studies detected only very slight protection, while others said HbE potentiates the medicine used in the treatment. Studies indicated that HbAE trait patients clear infections of *P. falciparum* more rapidly than do others during treatment with artemisinin derivatives although not during treatment with other antimalarial drugs.

One study's results suggest that hemoglobin E trait may ameliorate the course of acute falciparum malaria. Another study says that it more effectively prevents cerebral malaria.

Clinical Microbiology Reviews said,

The geographical region across which hemoglobin E is prevalent is one of the most malarious, both historically and today, and the burden of malaria in this region has therefore long been one of the heaviest in the world. The gene for hemoglobin E is certainly a good candidate to have been selected under the pressure of malaria in accordance with the malaria hypothesis, possibly under the influence of *P. vivax* as the principal agent of selection prior to the arrival of *P. falciparum* within these populations.

Malaria in Papua New Guinea

In Papua New Guinea, malaria is caused by all four major malaria parasites: *P. vivax*, *P. falciparum*, *P. malariae* and *P. ovale*. Malaria is endemic in regions below 1600 meters elevation there. I hope Garth kept himself slathered with Deet the entire time he was in PNG and *faithfully* took his anti-malarial drugs! Regrettably, he was not able to spot any pterosaurs while he was there. Maybe next time, Garth.

Natural Selection vs. evolution

We can see natural selection operating in populations of all species. What we cannot observe is natural selection producing new types of organisms. Evolutionists will sometimes point to new species, but that isn't where the controversy is.

We disagree with the belief that life evolved from a single-celled organism to what we have today. Some evolutionists claim natural selection guides this grand scale evolution. We disagree.

Bacteria have not become multicellular organisms. With their rapid reproduction, each generation only 15-20 minutes, we would expect to see significant evolution, but they remain bacteria. Moths remain moths, and dogs have not evolved into something else. Of course, something as grand as the change that supposedly changed fish to reptiles couldn't be observed in a thousand lifetimes. Whether that kind of evolution has occurred has to be accepted by faith and not fact.

Creation in the Crossfire

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