GMO rice to fight rotavirus

By ACSH Staff — August 14, 2013

Rotavirus is a scourge of infants and young children especially in the developing world as it can cause diarrhea and fatal dehydration. An effective vaccine has recently been developed (in part by ACSH trustee Dr. Paul Offit), but in some countries getting the vaccine delivered can be a serious obstacle, and people with impaired immune systems don’t necessarily reap the benefit of immunization. A new genetically engineered variety of rice may help solve these issues.

A study published in the Journal of Clinical Investigation describes a new rice variety that has been genetically engineered to contain an antibody to rotavirus. The research team, led by Dr. Daisuke Tokuhara of the University of Tokyo, tested the antibody in mice that had compromised immune systems. They found that, even after long-term storage and boiling, the antibody was active against the virus in the lab, and was also protective after heat treatment in immunocompromised mice.

Thus, if safety and similar efficacy can be demonstrated in humans, this provides yet another example of how genetically engineered foods can benefit health.

Dr. Offit noted “It is hard to get specific antigens through the intestine without modification. The advantage of using the whole virus particle [as is typically done in traditional vaccines: Ed.] is that it’s like a tiny bullet, resistant to acid and protease degradation.

ACSH’s Dr. Gilbert Ross adds “It would be great if this new method of protecting infants and children works in humans: then we could attack rotavirus by means of either an effective vaccine or a genetically engineered food. The prospect of such an advance using the most common source of calories in Asia is analogous to that of Golden Rice, genetically-engineered rice that contains high levels of vitamin A precursors to combat rampant deficiency diseases in impoverished, malnourished children. The latter has been stymied by anti-biotech luddites and activists; let’s hope the same fate does not befall this rice variety too.