

# Peter Agre

## The family naturalist

Peter Agre shared the Nobel Prize in Chemistry 2003 with Roderick MacKinnon. Agre's half was awarded for his discovery of a water channel protein in cell membranes.

### How important is an interdisciplinary approach in addressing urgent scientific questions, and how can we foster such collaborations?

Collaborations were incredibly important to our laboratory's pursuit of the structural biology and physiology of the aquaporin water channel. In my experience, interdisciplinary science often happens without much planning. By sharing ideas and news of our discoveries, we have always made friends with other scientists with technical capacities that we needed.

### Are scientists under-represented in politics? And do established scientists, especially Nobel laureates, have a duty to become active in

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### politics and science policy?

Science is grossly under-represented in elected offices of government. Most scientists are rather poor at communicat-

ing their work to non-scientists, and as a result the public fails to understand why our work is useful. Participation by scientists at all levels of elected office will be educational for the public. This has occurred in some countries such as Germany, where Chancellor Merkel was a physical chemist, and China, where President Hu Jintao trained as a hydraulic engineer. Governing is difficult, but I think governing without an advanced understanding of science is very risky.

### What is the one discovery that would herald a scientific revolution in the 21st century?

Discovery of the molecular explanation for happiness would be revolutionary. But this may not be just wishful thinking. Neuroscientists are making incredible breakthroughs in understanding the actions of serotonin. So who knows?

### You must have experienced a lull in your research career at some point. What kept you going?

I do not often talk about this, but I nearly quit science after the birth

of our third child Lydia. She sustained prolonged cerebral hypoxia during birth and was left with permanent, severe brain damage from which she eventually died. Unable to afford the necessary home medical care, I considered

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abandoning the laboratory to become a full-time clinician, since this seemed the safest way for me to support my family. The stable influence of my wife kept us on track. I stayed in the lab but changed the focus of our work to pursue medical problems of newborn infants.

The new direction of research led to the discovery that won me a Nobel.

### What advice would you give all young researchers who are starting their research life so as to become a good scientist?

#### PROFILE

- Director of Johns Hopkins Malaria Research Institute since 2008
- Born on 30 January 1949 in Northfield, near Minneapolis
- Was awarded an Eagle Scout Award in 1964, along with younger brother Jim
- Father was friends with Nobel prizewinning chemist Linus Pauling, who visited the house
- Adopted 'Bolshevik' and 'bohemian' thoughts following a camping trip to Russia
- Grades slipped at Theodore Roosevelt high school and in 1967 he quit to finish his high school degree at night school, learning Russian during the day
- In 1970, spent several months trekking around Asia — was in Cambodia during the secret US bombing raids
- Gained medical doctorate from Johns Hopkins in 1974
- Married Mary Macgill on 29 March 1975. The couple has three daughters and a son
- Returned to Johns Hopkins in 1981 and explored membrane proteins, while moonlighting as a ringside physician at professional boxing matches
- In 1991 discovered the long-sought-after water channel for cells, dubbed aquaporin (AQP1)

I always tell young scientists that aspiring to win prizes is a poor reason to do science.

I believe that the three most important objectives a young scientist should pursue are: 1) making an original discovery, 2) earning the respect of your peers and 3) training the next generation of scientists.

### Many people consider the peer-review system broken. Do you share their view, and do you have a solution??

I think that scientific peer review, like democracy, is a very poor system but better than all others.

### Aside from as a Nobel laureate, how do you want to be remembered?

The Nobel prize may be more important for science than for the individual laureate.

I often surprise people by asking them to name the Nobel prizewinners in 2003 (my year). Usually, they cannot remember any names, which is a demonstration that even a Nobel prize guarantees only a footnote in history books.

At the end of my life, I will be happy to be remembered as a scientist who loved the natural world and loved his family.

