

~ Biography ~

Chris Somerville



DEPARTMENT OF PLANT BIOLOGY
CARNEGIE INSTITUTION
AND
DEPARTMENT OF BIOLOGICAL SCIENCES
STANFORD UNIVERSITY

Dr. Somerville is the Director of the Carnegie Institution Department of Plant Biology and a professor in the Department of Biological Sciences at Stanford University.

Dr. Somerville has published more than 200 scientific papers and issued patents in plant and microbial genetics, genomics, biochemistry, and biotechnology. His current research interests are focused on the characterization of proteins, such as cellulose synthase, implicated in plant cell wall synthesis and modification.

He is a member of the senior editorial committee of Science magazine and is a member of the scientific advisory boards of numerous academic institutions and private foundations in Europe and North America. Dr. Somerville is also a member of the US National Academy of Sciences, The Royal Society of London and the Royal Society of Canada. He has received numerous scientific awards and honorary degrees. Dr. Somerville is presently chairman of the board of Mendel Biotechnology, a private plant biotechnology company in the San Francisco Bay.

~ Lectures ~

Monday, September 18

2:00 - 3:00

Deans Auditorium (PFEN)

“Genetic Dissection of Cell Wall Structure and Function”

Plant cell walls are very complex and dynamic structures composed mostly of high molecular weight polysaccharides, hyper-glycosylated proteins, and lignin. The Arabidopsis genome contains more than 800 genes encoding putative glycosyltransferases or glycosyl hydrolases and several hundred more genes encode other types of enzymes implicated in wall biosynthesis or function. Although the general catalytic activity of many of these enzymes can be inferred from sequence, the precise enzymatic function and biological role of most of these enzymes are unknown. I will describe recent results in which genetic and genomic methods have been used to assign functions to gene products involved in cell wall biosynthesis.

Tuesday, September 19

4:00 - 5:00

Deans Auditorium (PFEN)

“Scientific Issues Associated with the Development of Biofuels”

The earth receives approximately 4000 times as much energy from the sun each year as the total projected human uses in 2050. Thus, because plants can be deployed on a large scale to capture and store solar energy, one way of moving toward the development of carbon neutral energy sources is to use plant biomass for production of fuels. In considering this possibility, the Secretary of Energy of the US has called for the replacement of 30% of the liquid fuels used in the US with biofuels by 2030. Because of the large volume of fuel used by developed countries, the development of a large-scale biofuels industry in the developed world will require an enormous capital investment. A large-scale biofuels industry will also create competition with the use of arable land for food production. Thus, even though it is currently feasible to convert biomass to fuels by a variety of methods, there are many inefficiencies in the overall process that must be eliminated in order to make the most efficient use of land and capital. I recently co-organized a workshop that was sponsored by the US Department of Energy to evaluate the scientific and technical issues associated with biofuel production in the US. The proceedings of that workshop are available online at <http://www.doe.genomestolife.org/biofuels/>. I will present an overview of the issues described in that study.