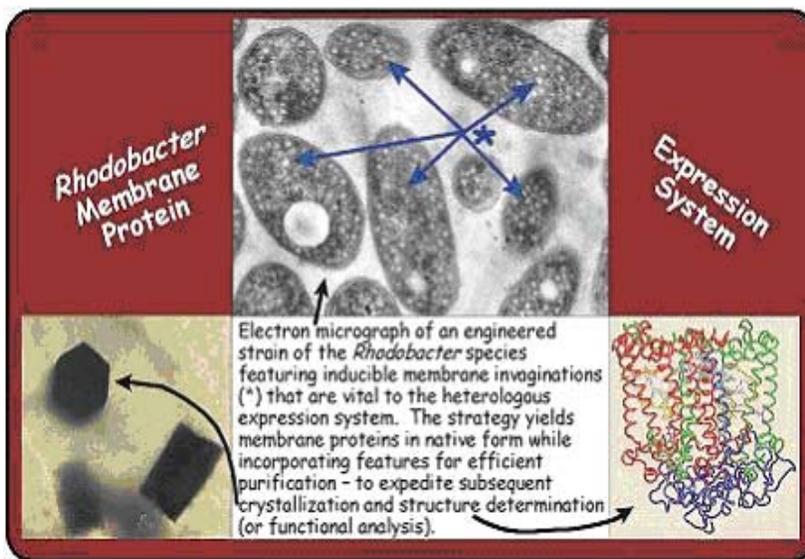
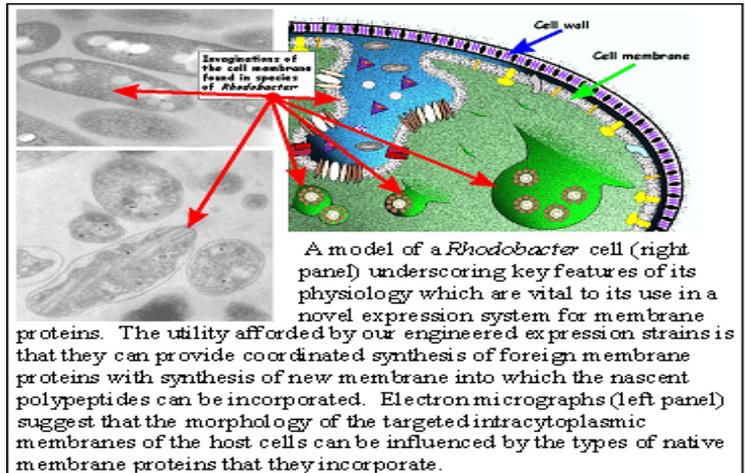


## A bacterial factory for the production of **MEMBRANE PROTEINS**

Cell membranes are important biological structures as they serve as the interface between an organism and its environment. Proteins that are contained within such membranes are extremely important for many cellular processes and, due to their communicative role between external stimuli and internal cellular metabolism, are invariably identified as possible drug targets.

Due to the importance of such proteins and the unique biochemical characteristics of membranes, fully functional membrane

proteins have properties that allow them to interact favorably with cellular membranes. Unfortunately, the very stability of such proteins in the membrane environment makes them highly unstable in the



aqueous environments typically used for the production and characterization of soluble proteins. The difficulty in the production of adequate amounts of the membrane protein under examination is a major roadblock for drug discovery efforts in the pharmaceutical industry and for basic science alike. Furthermore, as biologics become more mainstream, the necessity for the production of large quantities of active membrane proteins for regulatory testing is clear.

Dr. Phillip Laible and Dr. Deborah Hanson, from the Biosciences Division at Argonne, have invented a unique system of membrane protein expression that enables a reasonable yield of functional membrane protein to be obtained. The membrane protein of interest is cloned and expressed in photosynthetic bacteria via a number of vectors developed at Argonne. After culture the functional membrane protein can easily be purified using standard protocols, and the researchers have obtained crystals suitable for X-ray crystallographic studies using membrane proteins produced using their system.

It is hoped that this patented technology will provide a platform for the production of membrane proteins for a wide variety of uses – from the academic researcher working at the bench to drug discovery efforts in the pharmaceutical industry. Argonne has patented this revolutionary technology and is supporting the development of an Intellectual Property portfolio for licensing to the private sector.

## Patents

US 6465216: Methods and constructs for expression of foreign proteins in photosynthetic organisms

## For More Information

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