

## Professor Yasuhisa Asano

### Winner of the 2013 Enzyme Engineering Award



Since 1983 the Enzyme Engineering Award has been presented at ECI's biennial International Enzyme Engineering Conference. The 2013 Award will be presented at the 22<sup>nd</sup> Enzyme Engineering Conference in Toyama, Japan. This award recognizes outstanding achievement in the field of enzyme engineering, through basic or applied research in academia or industry.

The 2013 Enzyme Engineering Award, presented in the name of Engineering Conferences International and Genencor, will be awarded to **Professor Yasuhisa Asano**.

Professor Asano earned his B.S. degree in Organic Chemistry from Kyoto University (1975) and his M.S. (1977) and Ph.D. (1982) degrees in Applied Microbiology also from Kyoto University. His Ph.D. research was focused on the microbial degradation and transformation of nitrile compounds, where he worked under Professor Hideaki Yamada, a former Enzyme Engineering Award winner. Following postdoctoral research in Japan and the Ohio State University in the United States, Professor Asano began his career as a research chemist at the Sagami Chemical Research Center in Kanagawa, Japan. He moved to academia in 1990 as an associate professor at Toyama Prefectural University where he quickly rose through the ranks to become full professor in 1995. He currently serves as the Director of the university's Biotechnology Research Center. His current research is broadly in the fields of Applied Microbiology, Biochemistry, Molecular Enzymology, and Organic Chemistry.

Dr. Asano has made profound contributions to our understanding and utilization of microbial and plant reactions and enzymes as biotechnological tools for practical large-scale production of amino acids, nucleic acids, amides, and cyanohydrins. He has engineered enzymes for biotransformations at large scale, thereby enhancing the commercial adoption of enzymes for a wide range of processes in the food, chemical, and pharmaceutical industries. His work on enzymatic phosphorylation of inosine has been adopted by Ajinomoto for the production of inosinic acid and guanylic acid in 10,000 tons/year scale. This work serves one of the first examples of the industrial use of enzymes developed by directed evolution. He was the discoverer of nitrile hydratase in the laboratory of Professor Yamada for the production of acrylamide. This process (>400,000 ton/year) remains a benchmark against which large scale enzymatic transformations are measured. Similar large scale biocatalytic acrylamide processes are now routine throughout the world. Professor Asano has also been a pioneer in the development of microscale assays for amino acids and their analogs, and in particular, his rapid and microscale detection of phenylketonuria in newborns is now used routinely in Japan.

Prof. Asano has over 220 publications and has 90 patents.

**ENZYME ENGINEERING AWARDEES  
and  
LOCATIONS OF ECI ENZYME ENGINEERING CONFERENCES**

1971 - Henniker, New Hampshire, USA

1973 - Henniker, New Hampshire, USA

1975 - Portland, Oregon, USA

1977 - Bad Neuenahr, Germany

1979 – Henniker, New Hampshire, USA

1981 – Kashikojima, Japan

1983 – White Haven, Pennsylvania, USA - **ICHIRO CHIBATA**

1985 – Helsingor, Denmark - **KLAUS MOSBACH**

1987 – Santa Barbara, California, USA - **EPHRIAM KATCHALSKI-KATZIR**

1989 – Kashikojima, Japan - **SABURO FUKUI**

1991 – Kona, Hawaii, USA - **ALEX KLIBANOV**

1993 – Deauville, France - **MALCOLM LILLY**

1995 – San Diego, California, USA **MARIA-REGINA KULA** and **CHRISTIAN WANDREY**

1997 – Beijing, China - **HARVEY BLANCH**

1999 – Kona, Hawaii, USA - **CHI HUEY WONG**

2001 – Potsdam, Germany - **HIDEAKI YAMADA**

2003 – Santa Fe, New Mexico, USA - **JON DORDICK** and **DOUG CLARK**

2005 – Gyeongju, Korea - **DEWEY RYU**

2007 - Harrison Hot Springs, British Columbia, Canada - **FRANCES H. ARNOLD**

2009 – Groningen, The Netherlands - **SAKAYU SHIMIZU**

2011 – Vail, Colorado, USA – **DAVID ESTELL**

2013 – Toyama, Japan – **YASUHISA ASANO**