

## New drug discovery for protection against infection by different or new viruses

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We have identified ActoKine-2 (AK-2) which protects cells against infection by a broad spectrum of viruses. In collaborative work with NIAID and other laboratories to test the efficacy of AK-2 against a variety of viruses, AK-2 was found to have a protective potency greater than interferons against RNA, DNA & retrovirus in vitro & in vivo. In particular, AK-2 was highly active against different viruses including West Nile viruses, bird flu, Rift Valley fever virus, Punta Toro phlebovirus, HIV, Yellow Fever Virus, Tacaribe virus, and Venezuelan equine encephalomyelitis (VEE) virus. AK-2 could be administered sublingually or nasally to prevent infection through the nose or mouth or intravaginally to prevent against sexually transmitted diseases. These novel routes of administration can be safer, cheaper, and logistically easier than traditional injections for disease prevention. Identification of master control genes induced by AK-2 is expected to provide insight into the cellular protective mechanisms. ActoKine's proprietary technologies (CytoKey and CytoKill) will enable discovery and validation of the function of master control genes which will allow for screening for small molecule drug candidates mimicking the actions of AK-2. Small molecules offer several advantages over protein based pharmaceuticals, e.g., they are cheaper to manufacture, do not require cold storage and can be administered orally.

### Biography

Grace has spent her entire career on biologics, specifically on cytokines, at Genentech, Millennium, AstraZeneca and Serono. Her PhD project was on biologics under Sir Gus Nossal at The Walter and Eliza Hall Institute of Medical Research, Australia. Her post-doc projects were also on biologics with Dr. David Goeddel (who cloned and expressed human insulin, human growth hormone, tissue plasminogen activator, interferon-alpha and interferon-gamma etc) at Genentech. She continued working on biologics in a variety of diseases at Genentech, Millennium, AstraZeneca and Serono.

Grace successfully shepherded basic research discoveries to product development at Genentech in 1993 and was appointed Head of Apoptosis Research at Millennium in 1996 for discovery of cytokine inducible drug resistance genes using functional genomics. Grace joined AstraZeneca as Section Head of Molecular Genetics for discovery of cytokine inducible genes in Alzheimer's disease. At Serono, Grace was Director of Cytokine Genomics for discovery of novel cytokines in Women's diseases. Her work with biologics have made her valuable to biotech and pharma, receiving also job offers from Glaxo, Biogen, Human Genome Sciences and Cell Therapeutics, in addition to the positions she was able to accept.

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