

# Schering-Plough Biologics Fill Finish Facility Tuas, Singapore



**Project**  
Biotechnology Facility  
(Sterile Filling)

**Client**  
Schering-Plough Pte Ltd

**Value**  
> US \$100 million

**Assignment**  
Engineering, Procurement, Construction  
Management and Validation

**Completion**  
May 2002



Jacobs Lend Lease was contracted to provide Engineering, Procurement, Construction Management and Validation (EPCMV) services for the delivery of the US\$ 100 million Greenfield biotech facility for Schering-Plough Pte Ltd at its 10-hectare site in Tuas, Singapore.

The project involved the construction of a Sterile Facility comprising of a 4-storey building block and one common utility block. The building block has a total area of 65,000 square feet consisting of administration, laboratory, plant-room, production area and warehouse. The utility block houses the chiller units, cooling tower, tank farm and plant facilities.

The biotech facility supports the production of two biological drugs, Peg-Intron® for the treatment of hepatitis C, and Remicade® for the treatment of Crohn's disease and rheumatoid arthritis.

It consists of two filling lines for vaccines operating in a sterile clean-room environment. One line is dedicated for conventional vial filling with an output of 4.2M units p.a., the other is for syringe filling with an annual output of 7.4M units.

Preliminary design commenced in February 2000, with the establishment of combined resources from Bovis Lend Lease and Jacobs Engineering.

Process engineering and equipment procurement were carried out in Dublin, Ireland with local procurement and construction management undertaken in Singapore. Local consultants were engaged to assist with the authority permitting and design localization.

The project was awarded the Ministry of Manpower's Safety Awards for 2 consecutive years for attaining zero LTI in over 2.2 million manhours of construction.

A key focus during construction of the facility was on Quality. cGMP protocols and Clean Construction techniques were adopted including top-down inside-out construction planning to facilitate equipment deliveries and installation. Robust project controls were put in place to ensure construction documentation were maintained in accordance to GDP. The continuous effort ensured that the project successfully attained FDA-certification as planned.

This project also saw the installation of the first commercial-scale WFI (Water-for-Injection) loop in Singapore. This was done to a standard that surpassed comparable global benchmark facilities.

Piling started in September 2000 and the partial Temporary Occupation Permit was attained after 18 months while the final TOP was issued in May 2002.

