Breakthrough for babies born with severe cleft palates

STFC’s ISIS facility has been used to develop a novel material which is designed to improve the treatment of cleft palates, speeding up healing times and reducing operating costs

BACKGROUND
Clefts are the most common craniofacial birth defect in Britain, with one in every 700 affected by cleft lip or palate issues; 1,000 babies per year. Babies born with cleft palates usually have problems feeding, and may have speech difficulties in later life, as well as issues with their hearing, dentition and facial growth.

In severe cases radical surgery is required, often taking up to ten expensive operations to correct the problem. Cleft palates are currently repaired by surgically repositioning the tissue on the roof of the mouth to cover the gap in the palate. However, if the cleft is too wide there may be insufficient local tissue available to close the gap without undertaking radical surgery.

OXTEX
OXTEX Ltd, an Oxford University spin-out, are commercially exploiting novel hydrogel tissue expanders to improve the treatment of many disorders including craniofacial conditions; limb deformities, scar reconstruction and in restorative dentistry.

The product reduces the risk of soft tissue damage, making them ideal for use in delicate anatomical locations, and particularly in the treatment of children. It is thought that clinicians should be able to treat more cases, at a lower cost, and with better results using this product. The company are currently manufacturing their hydrogel for veterinary use, and will be launching their first product in late 2014. They are then planning to utilise their product for applications in humans as described, once their product has been certified for European distribution.

Prior to the formation of the company, a team of researchers at the University of Oxford, the John Radcliffe Hospital in Oxfordshire, and the Georgia Institute of Technology in the United States used STFC’s ISIS facility to characterise the hydrogel at the molecular level. This technology was then commercially exploited by OXTEX, who were formed in 2011.

COMMON PROBLEM
Clefts are the most common craniofacial birth defect in Britain, with one in every 700 affected by cleft lip or palate issues. This means one thousand babies each year could face problems feeding, and may have speech difficulties and hearing issues in later life.

“ISIS provided us with the high level of structural detail we needed to assess the new material. It gives unique and accurate results that we can’t get with any other technique.
–Professor David Bucknall from the Georgia Institute of Technology

www.stfc.ac.uk