



Award Winning Solutions: Medilink Innovation Award Winner 2012

XCAM is UK's "Most Innovative" Life Science Company

The Medilink Award

The Medilink award is an award given to the top business in the national Life Sciences sector and the Innovation Award marks out XCAM as the leading innovator in the sector over the past year.

"XCAM is contributing to world-class research which promises to provide vital structural information about the microbial world that goes unseen most of the time"



Darren Clark, Medilink East Midlands CEO

The Promise of Ground-Breaking Science

The key reason why scientists were so excited about the prospect of being able to use XFELs for their research was because the short pulses of very short wavelength light would for the first time ever enable diffraction images of non-crystalline materials to be taken. This opens up the possibility for studying structures like viruses and proteins and being able to map their structures in more detail than ever before.

A fine stream of molecules of the sample of interest must be passed in front of the laser beam. This must be carefully controlled as the goal is to get one femtop-second pulse to interact with one molecule and to take a picture of that image the split second before the molecule is vaporised by the intense beam.

This process is repeated many times and many diffraction images are accumulated with the sample molecule in many different orientations.

Scientists apply an algorithm 'the shrink-wrap algorithm', which enables them to use the information and reconfigure it to provide a single diffraction image of the non-crystalline object.



XCAM Designs and Manufactures the First Free Electron Laser Camera System

In June 2008 XCAM was contacted by Henry Chapman who was leading the team who would be the first in the world to use the XFEL. He had just heard that his special detectors were not going to arrive in time, and needed a camera making from conventional CCD detectors – but fast – within less than 5 months if he was not to miss the opportunity to be the first to use the FLASH XFEL.

XCAM considered the options and got to work rapidly designing and manufacturing a triple camera based on the single unit shown, in just 4 months.

Results

The worlds first images of the Mimivirus were captures using this camera system. The method of capture was

