ESRF	**Experiment title:** X-ray crystallographic binding studies of *e.coli* maltodextrin phosphorylase native structure determination and oligosaccharide recognition studies	**Experiment number:** LS 416
Beamline: BM14	**Date of experiment:** from: 28.5.9621.00 to: 31.5.9606.30	**Date of report:** **24.7.96**
Shifts: **9**	**Local contact(s):** Andy Thompson	*Received at ESRF:* 31 JUL 1996

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Report:

Large numbers of large, (0.1*0.1*0.05)mm fresh crystals, which had diffracted to 2.8Å on previous synchrotrons visits, had been grown for the purposes of this data collection. Cryo conditions had also been previously established in house. On commencing the experiment it was discovered that many of the oligosaccharide co-crystals were twinned and many of those that were not diffracted to only 3.2Å. Cocrystals with glucose diffracted to only 3.5Å due to their small size. Whether as a result of transport or random variations in the crystallisation conditions crystals appeared sensitised to the cryo protestant. 30% glycerol, which had been successfully used as a cryoprotectant during previous data collections, caused disruption of the crystals. A range of glycerol concentrations were tried, but without success. MPD caused more pronounced disruption of the crystals. 2 crystals were mounted at room temperature and diffracted well to 2.8Å. These rapidly died due to the intensity of the source. Only 2-3 frames could be collected from each crystal before significant crystal death occured. There were not enough crystals available to allow a room temperature data collection to be carried out. Exposure of all available crystals took 10 hours and the remaining beam time was utilised by Dr Steven Cusack. The well diffracting crystals were cocrystals of the tenary complex with maltopentaose and glucose.