ESRF	**Experiment title:** Structural characterization of human NMN adenylyltransferase	**Experiment number**: LS-1664
Beamline: ID14-4	**Date of experiment**: from: 19.07.2000 to:21.07.2000	**Date of report**: 1 August 2000
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Nicotinamide adenine dinucleotide (NAD^+) is an essential and ubiquitous coenzyme playing a fundamental role in cellular metabolism. NMN adenylytransferase (NMN-AT) is a vital and ubiquitous enzyme involved in NAD biosynthesis. It catalyses the condensation of ATP and NMN yielding NAD. Most remarkably, in eukaryotes, this is the only enzyme of the biosynthetic pathway to be located in the cell nucleus, leading to the proposal that its nuclear localization could be related to the consistent demand for NAD^+as a substrate for nuclear poly-(ADP) ribosylation reactions of histons and related proteins. Moreover, it has been reported that NMN adenylyltransferase activity, which is critical for cell survival, is profoundly alterated in highly proliferating cells, making the enzyme a potential target for cancer chemotherapy. We have recently crystallized the human enzyme whose 3D structure determination is being carried out through MIR technique. Crystals of human NMN-AT belong to space group $P6_322$ with unit cell parameters a=b=146.5 Å and c=62.1 Å. The asymmetric unit contains a NMN-AT monomer. We have measured six data sets (native and putative heavy atom derivatives) with the following statistics:

Tab 1: Summary of data collection. Beamline ID14-EH4

	Native		PCMBS	HgCl2	KAu(CN)2	K2PtCl4	PCMB	
Resolution	2.5 Å		3.0 Å	3.0 Å	3.0 Å	3.0 Å	3.0 Å	
Observations	140,379	101,210	71,078	65,090	56,295	106,081		
Unique reflections	14,039		6261	6235	6199	6255	6277	
Rmerge	6.4		9.4	8.2	7.5	6.2	8.3	
Multiplicity	9.6		16.2	11.4	10.5	9.0	16.9	
Completeness	99.7		99.9	99.9	99.9	99.9	99.9	