


Experiment Report Form

	Experiment title: Cytoskeleton of pathologic Microvascular angina Red Blood Cells.	Experiment number: MD-976
Beamline: ID02	Date of experiment: from: 5 Apr 2016 to: 6 Apr 2016	Date of report: <i>Received at ESRF:</i>
Shifts: 6	Local contact(s): Johannes Möller	
Names and affiliations of applicants (* indicates experimentalists): Paola Brocca*, Elena Del Favero*, Valeria Rondelli*, Laura Cantù*, Viviana Cavalaca Dept. BIOMETRA University of Milan		

Report:

We performed SAXS measurements on 23 solutions of ghost of Red Blood Cell extracted from healthy donors and Microvascular angina patient. Ghosts were prepared consisting in empty plasma membranes plus cytoskeleton. Moreover measurements were performed on the inside-out vesicles, IOV, purified from the same ghosts sample. RGB are treated in order to remove the proteic component bounded by actine filaments to the lipid membrane and building the cytoskeleton. IOV spontaneously closes to form vesicle like structures with an aqueous empty core. We are interested to evince features of the cytoskeleton network building the skeleton sustaining the cell membrane.

Samples were put in plastic capillaries. An extended lengthscales have been considered acquiring spectra at three sample to detector distances, namely 1m, 6m and 31 m. Care was taken to test for radiation damage. In

figure 1 we report merged spectra of several RBC ghost samples showing high profile similarity.

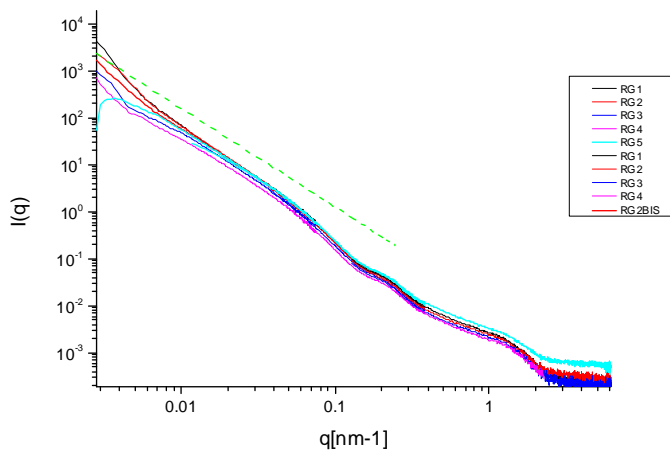


Figure 1

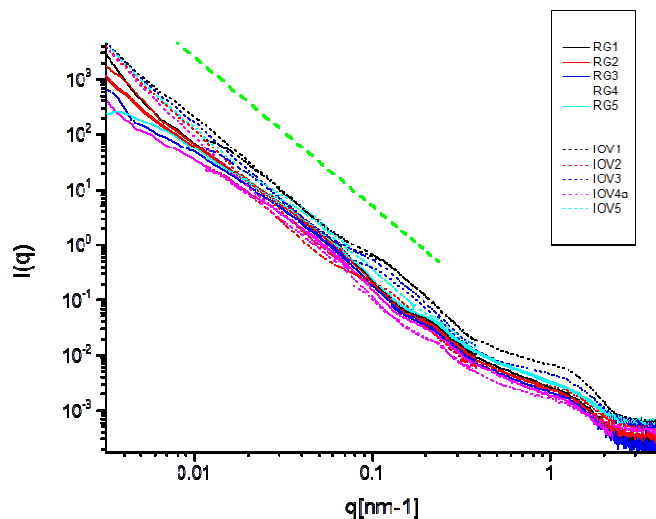


Figure 2

In figure 2 we report a comparison of RBC ghost and IOV scattering spectra for several samples.

Correlation of SAXS measurements with other experiments performed in our laboratories are ongoing: microscopy on the same RBC *ghost* and IOV, serum lipid composition, RBC lipid membrane profile, osmotic stress lyses parameters, α vs β spectrine ratio. From the Angstrom to the micron scale the scattering profile satisfy different slopes for the two spectral categories. The feature at about 0.3 nm⁻¹ observed for all ghosts is lost in the case of those IOV that showed minor amount of residual spectrins by fluorescent microscopy (as those shown in figure 2).

