the previously observed fluorescence changes and point to a mechanism by which TM changes the thrombin substrate specificity in favor of protein C cleavage.

Keywords: thrombomodulin; structural analysis; calcium-induced dimerization

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S3-MICROpix: A High-Efficiency SAXS System for the Laboratory. Peter Laggner[a], Philipp Herrnegger[a], Manfred Kriechbaum[a]. [a]*IBN - Institute of Biophysics and Nanosystems Research, Austrian Academy of Sciences, A-8042 Graz, Austria, and Hecus X-Ray Systems GmbH, A-8020, Graz, Austria.* E-mail: Peter.Laggner@oeaw.ac.at

A compact table-top SAXS instrument with high-brilliance X-ray optics in combination with a solid-state pixel detector (Pilatus, Dectris, Villigen, CH)[1)] has been developed on the basis of the Hecus S3-MICRO system (Hecus XRS, Graz)[2)] . The optics consist of a high brilliance microfocus source, a bi-ellipsoidal focussing multilayer element (GeniX, Xenocs, Sassenage, France)[3)], and a tuneable 2-D beam-shaping SAXS-collimator. This provides a monochromatic ($\Delta\lambda/\lambda \geq 10^{-2}$) point-beam of ≤ 0.09 mm^2 cross section with a flux of $\geq 3\text{x}10^7$ ph/s, and a divergence of 0,5 x 1 mrad^2 (vert./horiz.). This corresponds to a nominal resolution of ~3000 Å. In practice, it is more relevant to define a quality parameter Θ by the q-value of the pixel, where the ratio of the local background intensity and the integral primary beam intensity is less than 10^{-8}. With S3-MICROpix, $\Theta \leq 5.10^{-3}$Å^{-1}. This high optical quality, which is substantially better than conventional 3-pinhole geometry or 'parallel beam' optics, is achieved by focusing the primary beam precisely on the detector plane, by minimising parasitic scattering (windows, slits) and, most importantly, by the 'zero-noise' Pilatus-100 detector, overcoming the background problems inherent in conventional CCD detection.

With S3-MICROpix, low-scattering power systems such as protein solutions can be analysed in record times for laboratory SAXS. A test series with lysozyme solution at different exposure times has shown, that exposure times longer than 9 min do not lead to significant improvement of the results in terms of errors in the p(r)-function. The radius of gyration can be determined within less than 3 minutes to an error of $\leq 2\%$. This sets a new standard for nano-particle sizing.

Other high-brilliance dependent techniques, such as GISAXS, high-pressure experiments (up to 100 MPa), time-resolved 2D-SWAXS experiments (static or flow-through) and automated high-throughput screening are implemented in the compact table-top system (floor space ≤ 4 m^2 including system control station).

The system provides a highly energy-saving alternative to traditional laboratory SAXS-stations since the X-ray source is operated at 50 W, as compared multi-kW power normally used for laboratory instruments.

[1]http://www.dectris.com/sites/pilatus100k.html [2] http://www.hecus.at/pdf/S3-MICROpix.pdf [3] http://www.xenocs.com/range-beam-delivery-systems.htm.