sfb 635
posttranslational control
of protein function

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Seminars in Genetics and Molecular Cell Biology

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Chemical conjugation of proteins with ubiquitin-like protein modifiers

The posttranslational modification of proteins with ubiquitin-like protein modifiers (Ubl) is involved in numerous biological pathways. One inherent problem for studying the molecular consequences of these modifications on the biochemical, structural, and cellular levels is the inaccessibility of most Ubl-conjugates by enzymatic preparations in a defined and homogeneous form. Therefore, significant efforts have been undertaken very recently to develop strategies for the chemical conjugation of Ubl modifiers to target proteins. We have reported a new approach for this purpose based on the bioorthogonal Cu(I)-catalyzed azide-alkyne cycloaddition, also referred to as click chemistry. The chemical Ubl-protein conjugates exhibit a triazole linkage instead of the native isopeptide bond. Examples prepared so far include the SUMOylated E2 conjugating enzyme Ubc9 and the whole set of seven di-ubiquitins. Their biochemical characterization in enzymatic and binding assays suggests full biological activity. This talk will illustrate the methodology and the current systems under investigation, as well as discuss strengths and potential limitations of the approach.

Tuesday, November 20, 2012 at 5.00 p.m.

Institute for Genetics,
Zülpicher Str. 47 a, Lecture hall, 4th floor

Host: Gerrit Praefcke, Institute for Genetics,
University of Cologne

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