

UniCat Colloquium

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Lecturer: **Prof. Dr. Thomas Carell**, Munich Center for Integrated Protein Science CIPSM, Department of Organic Chemistry, Ludwig-Maximilian University Munich

Title: **The Chemistry of DNA-Repair**

Abstract: Our genome is constantly damaged by various exogenous and endogenous events. 20'000 to 40'000 lesions are in this way generated each day per cell. These lesions interfere with the normal transcription and replication events. In the lecture I will describe the chemical synthesis of oxidative DNA lesions, DNA lesions, which are formed due to UV-irradiation, and of cisplatin lesions generated during a typical anticancer therapy. I will discuss how these lesions are synthesized and incorporated into oligonucleotides using solid phase chemistry or direct chemistry on DNA. DNA double strands containing a defined (6-4) lesions at defined sites were used to create a co-crystal structures with the (6-4) DNA photolyase from *Drosophila melanogaster*. From this structure and correlated biochemistry we could develop a new repair mechanism used by the protein to achieve a light induced repair reaction. Furthermore, co-crystal structures of cisplatin lesion containing DNA in complex with polymerase-eta allowed us to decipher step-by-step the mechanism of translesion synthesis.

Date: **Wednesday, 14 July 2010**

Time: **5:15 pm - around 6:45 pm**

Location: **TU Berlin
Institute of Chemistry, Building C
Straße des 17. Juni 115, 10623 Berlin
room C 243**

Organiser: Prof. Dr. Roderich Süßmuth (TUB)

Coffee and tea will be served thirty minutes prior to the lecture start. Guests are cordially invited to attend!

Prof. Dr. Matthias Driess, Chair of the Cluster of Excellence UniCat