

GSI - SEMINAR

Im Theorieseminarraum, SB3 Raum 3.170a

Darmstadt, Planckstraße 1

Donnerstag, den 26. November 2015, 14:00 Uhr

Prof. Dr. Kai Rothkamm

Labor für Strahlenbiologie und Experimentelle Radioonkologie, Universitätsklinikum
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***“DNA damage-associated biomarkers of radiation exposure and effect:
applications in cancer research and therapy”***

DNA is a vitally important biomolecule which stores the genetic information required to create the molecular building blocks for cells, tissues and whole organisms. To counteract endogenous degradation processes such as oxidation and hydrolysis as well as exogenously induced DNA lesions, cells have devised a number of mechanisms for responding to and repairing damaged DNA, without which higher lifeforms would not have been able to evolve.

Not surprisingly, cellular DNA is also the principal target through which ionising radiation exerts its main biological effects, whether cell killing, neoplastic transformation, mutation induction, growth arrest or cellular aging. Whilst the main aim of radiotherapy is tumour cell inactivation, one needs to consider all of these biological responses to get the full picture of how radiotherapy affects the tumour and the surrounding normal tissue. And in order to understand these cellular responses it is important to know about the molecular machinery that cells employ to repair DNA that has been damaged by radiation.

Apart from furthering our understanding of the basic mechanisms that govern the cellular radiation response, research into the cellular DNA damage response also opens up opportunities to i) learn why some individuals may react more severely to radiotherapy than others, ii) identify potential markers of individual tumour and patient responses to support a move towards personalised treatment and iii) establish biological targets that can be used for tumour radiosensitisation.

Einladender: Prof. Dr. Gerhard Kraft

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