

# Soutenance

## Soutenance HDR

Mercredi 05 Déc. 2012

A 10h - Salle des séminaires de l'IBS

**Institut de Biologie Structurale J.P. Ebel**  
41, rue Jules Horowitz  
F-38027 GRENOBLE Cedex 1  
Tél. +33 (0)4 38 78 95 50 - Fax +33 (0)4 38 78 54 94  
[www.ibs.fr](http://www.ibs.fr)

**Par Joanna Timmins**

**Institut de Biologie Structurale J.P.Ebel**  
Groupe Infection virale et cancer

## Structural studies of the DNA repair machinery of *Deinococcus radiodurans*

*Deinococcus radiodurans* is an unusual bacterium, displaying an outstanding resistance to desiccation, ionising radiation and DNA damaging agents. I became interested in this organism initially in the context of an ongoing structural genomics project at ESRF, which I joined in 2003. This structural genomics project led to the determination of a dozen crystal structures of proteins associated with the radiation-resistance phenotype of *D. radiodurans*. In addition, a number of complementary approaches were used to study this organism such as irradiation of cells on the medical beamline or coherent diffraction imaging of frozen cells. By 2006, I had become particularly involved in the structural and biochemical studies of several essential DNA repair proteins involved in homologous recombination and the nucleotide-excision repair pathways. A strong collaboration with NorStruct in Tromsø also led me into the base-excision repair field. My interest in the DNA repair mechanisms of *D. radiodurans* brought me to the IBS in 2011 with an ATIP-Avenir grant, where I am now establishing my own team, focusing on the early steps of DNA repair, involving the specific recognition of DNA damages. My objectives are to determine the principles of damage localisation and recognition in cells by using high- and low-resolution structural studies combined with super-resolution imaging of the repair machinery in cells.