



Australian  
National  
University

# Recombinational repair and pumping of the bacterial chromosome

Tuesday 13 November 2012 1pm

Dr Ian Grainge School of Environmental and Life Sciences, University of Newcastle

Slatyer Seminar Room RN Robertson Building (46), ANU



DNA replication is an essential event in all organisms that has to be completed faithfully prior to cell division. The protein machine that copies DNA, the replisome, can dissociate upon encounter of DNA damage or tightly bound protein complexes. Using a new methodology we can probe the recombination pathways in bacteria that deal with collapsed replication forks, leading to the subsequent restart of replication.

Once replication is complete the two bacterial chromosome copies need to be segregated into opposite cell halves. A key protein in co-ordinating cell division with DNA segregation is FtsK; the FtsK protein forms a hexameric, ring-shaped DNA translocase motor, capable of pumping DNA at  $>17$  kb sec<sup>-1</sup>. Using linked multimers we are developing a new

understanding of the complex mechanism the protein employs to move DNA at this amazing rate.

Presented by

Division of  
Biomedical Science  
& Biochemistry

Research School of  
Biology

ANU College of  
Medicine, Biology  
& Environment

STAFF LECTURE