



# Karl Friedrich Bonhoeffer Lecture

Thursday, 8<sup>th</sup> October 2015 - 5 pm

Manfred Eigen Hall,  
Max Planck Institute  
for Biophysical Chemistry

Am Faßberg 11, 37077 Göttingen



**Nick Proudfoot**

Sir William Dunn School of Pathology  
University of Oxford (Great Britain)

## **Defining transcription units across the human genome**

The dramatic achievement of sequencing the whole human genome has been tempered by the subsequent realisation that the human transcriptome is far more complex than initially anticipated; far from any clear understanding of how and why it is made. My lab has focused on the basic mechanism of transcriptional termination and associated RNA 3'-end processing by the major RNA polymerase II (Pol II) that is responsible for the synthesis of all pre-messenger RNA and most non-coding RNAs. We have uncovered a surprising diversity of termination mechanisms using gene specific analyses. We are now applying new native elongating transcription (NET) sequencing strategies to define all Pol II transcription units (especially mammalian NET-seq). Using this technology we are uncovering unanticipated mechanistic cross-talk between the basic transcription process and associated pre-mRNA and long non-coding RNA processing.