

P022 The Importance of Scanning Distance in N-*myc* IRES Function
**Steve Haines, Keith Spriggs, Sally Mitchell, Laura Cobbold
and Anne Willis**

*RNA Biology Group, School of Pharmacy, University of
Nottingham, University Park, Nottingham*

In mammalian cells, translation is predominantly initiated via a 5' cap-dependent mechanism. Cellular stresses, including apoptosis, can compromise cap-dependent translation initiation. However, a significant number of genes, including many stress response genes, can initiate translation in a cap-independent manner using an internal ribosome entry segment (IRES) in the 5' untranslated region (UTR). The N-*myc* gene is part of the *myc* family of proto-oncogenes that also contains the C-*myc* and L-*myc* genes. All 3 genes have been shown to contain IRES sequences.

Previous work has shown that all 3 IRES sequences are capable of promoting initiation in a range of cell types, but while the *myc* genes are closely related in terms of coding sequence, their IRESs are structurally disparate. One common feature shared by these IRESs is the presence of a 80-200 bp region between the ribosome entry site and the initiating AUG codon. A deletion of this region within the N-*myc* IRES has shown that while translation can still be initiated in its absence, it is severely compromised, indicating that scanning distance is an important feature of IRES function. The requirements for this scanning window are currently being investigated.