Abstract for TWS symposium- Dr Evan Reid, Department of Medical Genetics and Cambridge Institute for Medical Research, University of Cambridge.

The Function of NIPA1

With Dr Cahir O'Kane (Department of Genetics, University of Cambridge), we have shown recently that spicthyin, the *drosophila* homologue of the hereditary spastic paraplegia protein NIPA1, is a novel endosomal inhibitor of BMP signaling. This inhibition is very likely to happen via an interaction between the *drosophila* type II BMP receptor and spicthyin and causes a downstream dysregulation of axonal microtubules. We have investigated whether the mammalian homologue of NIPA1 might also be involved in BMP signaling. We find that over-expression of NIPA1 in tissue culture cells is associated with decreased levels of the BMP pathway signaling molecules pSMAD1 and 5. Conversely, knock-down of NIPA1 leads to increased pSMAD signaling. Expression of NIPA1 is associated with internalisation of BMP receptors, and their targeting towards an endosomal degradative compartment. These results are compatible with mammalian NIPA1 having a similar effect on BMP signaling as its *drosophila* counterpart.