Sorting of neonatal Fc receptor into recycling pathway; Dissection of sorting signals

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It is hypothesised that serum proteins albumin and immunoglobulin G (IgG) can be internalised in cells through fluid phase uptake. Neonatal Fc receptor (FcRn) binds specifically albumin and IgG in endosomal compartments and protects them from intracellular degradation pathway by recycling them back to the cell surface to be released again into serum. How is FcRn sorted into recycling pathway is still unknown. We defined the role of the cytoplasmic tail of FcRn in mediating the sorting of the receptor into the recycling pathway. We have analysed the intracellular routing of a chimera encoding the human FcRn cytoplasmic tail fused to the ecto- and transmembrane domains of CD8a protein. The chimera protein was sorted into early and recycling endosomes in a similar manner to that of the native FcRn, indicating that the cytoplasmic tail is sufficient to direct an unrelated CD8a to a transport pathway similar of native FcRn. In addition, we found that the insertion of FcRn cytoplasmic tail motif (GLPAPWISL) into CD8a reporter result in sorting of CD8a into recycling endosomes. Interestingly, changing (GLPAP) into (AAAAA) result in sorting of CD8a carrying WISL to late endosomes, indicating that the sequence (GLPAP) was necessary for the sorting into recycling pathway.