Table S1. Amino acids sequences of human and mouse Ii isoforms. In this study, we have used a cDNA construct encoding the p33 isoform of human Ii that ordinarily arises from p35 (isoform 2b, NCBI) mRNA by the use of an alternative translational start site. The start methionine of p33 is indicated in bold. In p33, the arginine-rich amino-terminal sequence (underlined) is lacking that contains an ER retention motif. In human p43 and mouse p41 the additional sequence that is encoded by exon 6b and discriminates them from p35 and p31 respectively, is underlined. The transmembrane domain is highlighted in each Ii protein. All depicted Ii species have the lysosomal targeting motifs. Literature references to cited information are given in the manuscript text.

Human Ii isoform a (p43)

```
                                                                TM
1 mhrrrsrscr edqkpvmddq rdlisnneql pmlgrrpgap eskcsrgaly tgfsilvtll
       61 lagqattayf lyqqqgrldk ltvtsqnlql enlrmklpkp pkpvskmrma tpllmqalpm
      121 galpqgpmqn atkygnmted hvmhllqnad plkvypplkg sfpenlrhlk ntmetidwkv
      181 feswmhhwll femsrhsleq kptdappkvl tkcqeevshi pavhpgsfrp kcdengnylp
      241 lqcygsigyc wcvfpngtev pntrsrghhn csesleledp ssglgvtkqd lgpvpm
```

Human Ii isoform b (p35)

```
                    Start p33
1 mhrrrsrscr edqkpvmddq rdlisnneql pmlgrrpgap eskcsrgaly tgfsilvtll
       61 lagqattayf lyqqqgrldk ltvtsqnlql enlrmklpkp pkpvskmrma tpllmqalpm
      121 galpqgpmqn atkygnmted hvmhllqnad plkvypplkg sfpenlrhlk ntmetidwkv
      181 feswmhhwll femsrhsleq kptdappkes leledpssgl gvtkqdlgpv pm
```

Mouse Ii isoform 1 (p41)

```
1 mddqrdlisn heqlpilgnr prepercsrg alytgvsvlv alllagqatt ayflyqqqgr
       61 ldkltitsqn lqleslrmkl pksakpvsqm rmatpllmrp msmdnmllgp vknvtkygnm
      121 tqdhvmhllt rsgpleypql kgtfpenlkh lknsmdgvnw kifeswmkqw llfemsknsl
      181 eekkpteapp kvltkcqeev shipavypga frpkcdengn ylplqchgst gycwcvfpng
      241 tevphtksrg rhncsepldm edlssglgvt rqelgqvtl
```

Mouse isoform 1 (p31)

```
1 mddqrdlisn heqlpilgnr prepercsrg alytgvsvlv alllagqatt ayflyqqqgr
       61 ldkltitsqn lqleslrmkl pksakpvsqm rmatpllmrp msmdnmllgp vknvtkygnm
      121 tqdhvmhllt rsgpleypql kgtfpenlkh lknsmdgvnw kifeswmkqw llfemsknsl
      181 eekkpteapp kepldmedls sglgvtrqel gqvtl
```