Compartmentalisation of cellular functions is often achieved by transport of messenger RNA to particular locations within a cell. This is the result of the recognition of a signal in the RNAs concerned by transport proteins that interact with a molecular motor. The mRNA encoded by the gene *gurken*, required for determining the polarity of Drosophila oocytes and embryos, and RNA encoded by the *I* factor, a non-LTR retrotransposon, are two such. These are transported along microtubules by dynein in the oocyte. Transport proteins generally recognise secondary structures within RNA and we have identified stem-loops that are necessary and sufficient for localisation of *gurken* and *I* factor RNA (Van De Bor et al., 2005). Despite structural similarity of these stem-loops *I* factor RNA is localised more efficiently within the oocyte than *gurken*. This difference is attributable to a second stem-loop present in *I* factor but not in *gurken* RNA. This can confer increased localization efficiency in *gurken* RNA and evidence indicating the mechanism by which this is achieved will be presented.