complementary sites within the 3' untranslated region (3'UTR) of lin-4 Mrna which leads to a **repression of translation**.

- The problem was that the miRNAs were not interacting in a perfect way with their targets but forming these imperfect interactions in 'bulges'.

- **Let-7 – genetic screening for premature lethality:**
  1. This was discovered in the year 2000: ***Let-7* pre-miRNAs** are encoded in genomes of different species, ranging from the C.elegans to Drosophila to humans.
     - Regulated downstream components like lin-4, but the major difference is that this gene was encoded in many multicellular organisms.
     - This suggested that miRNAs might be more common regulators than the original study suggested.

  2. Additionally, let-7 can **target more than one Mrna,** and on the other hand, it suggested that a **single Mrna can be controlled by more than one miRNA.**

- **Summary:**
  1. miRNAs are non-coding RNAs.
  2. In addition to the mature, ~22 nt long miRNA form, there is a ~60 nt precursor.
  3. miRNAs normally bind to partially complementary sites within the 3'UTR of their Mrna targets and repress translation and/or Mrna stability.
  4. A single miRNA can target more than one Mrna.
  5. In turn, a single Mrna can be targeted by more than one miRNA.
  6. Individual eukaryotic genomes contain **many distinct miRNA genes.**
  7. Many miRNA genes are **evolutionarily conserved across species**.

MicroRNA Biogenesis and Molecular Functions