

# Solutions to 7.013 Central Dogma Problems

## Prokaryotic Gene ( $\beta$ -galactosidase)

- a) 5' AAUUGUGAGC.....3'
- b)  $H_3N^+$ -met-ser-his-arg-lys-... $COO^-$  OR M-S-H-R-K
- c) No, because it is read out of frame; it is read as: CUA, AGA
- d)  $H_3N^+$ -met-ser-thr-gly-asn-..... $COO^-$  or M-S-T-G-N
- e)  $H_3N^+$ -met-ser-his-lys-glu-... $COO^-$  or M-S-H-K-Q
- f) No change, silent mutation
- g) Delete 1 or add 2 after AUG and before the TAA (and do not make another in-frame stop).
- h) UGG (trp) ----> UGA (stop)
- i) AGG (arg) ----> GGG (gly)
- j) AGG (arg) ----> AGA (arg)

## Eukaryotic Gene (*con-6*)

The structure of con-6 is shown below (numbers as in the genomic sequence).

