

Solutions

2.1 A Distinguish a measured mRNA change from a protein or functional change. Translation, degradation and protein modification can all intervene. Regulation is specific to a cell context and environmental conditions.

2.2 fold change=treatment/control=15/5=3.

2.3 False. An epigenetic change is not automatically a DNA-sequence mutation. More mRNA does not guarantee proportionally more active protein.

2.4 transcription factor. transcription factor means A protein that influences transcription.

3.1 Fold change3; increase $(12-4)/4 \times 100 = 200\%$. Absolute counts need normalization and sample-size information. Expression association alone does not demonstrate a causal regulatory mechanism.