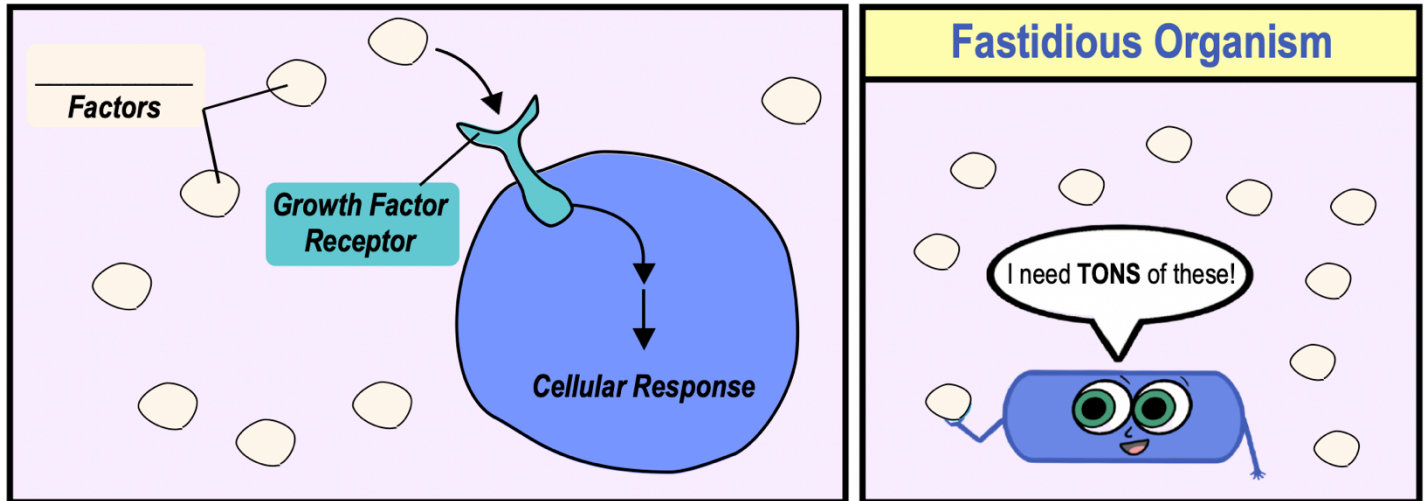


CONCEPT: GROWTH FACTORS

- Some microbes require _____ factors from the environment that they cannot synthesize on their own.
 - **Growth factors:** biological substances that _____ cellular growth.
 - _____ **Organisms:** have *complex* nutritional requirements (require *many* growth factors).



PRACTICE: Small organic molecules that must be provided to bacteria for them to grow are called:

- a) Minerals.
- b) Growth factors.
- c) Water.
- d) Vitamins.

PRACTICE: Some microorganisms are difficult to culture because they require very specific growth factors to flourish. For example, *Neisseria gonorrhoeae* is difficult to culture because it requires blood, hemoglobin, many amino acids and many vitamins to grow. *Neisseria gonorrhoeae*, is an example of what type of organism?

- a) A halophilic organism.
- b) A photoheterotrophic organism.
- c) A fastidious organism.
- d) A facultative anaerobic organism.