

10

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Physiology 115  
Spring 2015

Name RIDLEY, SHENIQUE 18 MAY 15

### QUIZ #4

For the multiple choice questions, there is *one* and *only one* best answer. Use the back of the sheet if you need to complete answers.

1. Which structure in the mitochondria contains the proteins and lipids involved in the oxidation-reduction reactions of the electron transport system?
  - a. cytosol
  - b. matrix
  - c. intermembrane space
  - d. outer membrane
  - e. inner membrane
  
2. Which of these electron-accepting coenzymes will produce three (3) ATP molecules during oxidative phosphorylation?
  - a.  $\text{FADH}_2$
  - b. NADH
  - c. ethanol
  - d. lactate
  - e.  $\text{CO}_2$
  
3. Which of these is a function or feature in a lysosome?
  - a. contains digestive enzymes in its vesicle that will activate on acidification
  - b. has proton ( $\text{H}^+$ )-ATPases in its membrane to pump  $\text{H}^+$  into the vesicle
  - c. is produced as a vesicle budding off the *trans* face of the Golgi complex
  - ~~d. all of the above~~
  - e. none of the above
  
4. Do EITHER (a) OR (b)
  - (a) Give the names of three (3) things that fundamentally form or are characteristic of the rough ER
  - (b) What are the three (3) trafficking fates for vesicles coming off the Golgi complex (name & describe)?
 

A). 1. RIBOSOMES  
2. LUMEN  
3. ~~CISTERNAE~~ CRISTA

B). 1. CONSTITUTIVE SECRETION: HAVING SPECIALIZED ENZYMES TO HELP VESICLES moving from ~~THE~~ CISTERNAE to LISTERNAE IN THE INNER MEMBRANE.  
2. REGULATORY SECRETION: VESICLES WAIT IN THE PM TO GET ACTIVATED.  
3. LYSOMAL FORMATION: LYSOSOMES WILL GET FORMED HERE

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**Physiology 115**  
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Name BEN LOPEZ

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A. 1) RIBOSOMES ✓

2) PROTEINS ✓

3) VESICLE ✓

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Name Bryan Kao

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B) Constituent - Apoproteins / surface / human proteins the cell immediately needs

Regulated - sent to target location with spare parts, will not release contents until signal is received

Lysosome - splits out a lysosome

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- b) 1) goes to designated site and acts upon cell when it reaches site.  
2) goes to designated site but gets stored until a reaction activates it.  
3) gets turned into peroxisome for transportation

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Name L12 Wells

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3

- 1) continuous w/ smooth ER
- 2) rough surface ?
- 3) interacts w/ Golgi complex through vesicles

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1. - binds to plasma membrane + releases contents immediately
2. regulated - binds to P.M. + waits for signal to release via pinocytosis
3. Lysosome

Physiology 115  
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Name

QUIZ #4

Lydia Zeg

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RER

- 1) has a ribosome studded surface *?*
- 2) Does NOT produce steroid ~~hormones~~ hormones
- 3) originates in the intermembrane surface

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Name Jacqueline Chen

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- a) the lumen (space)  
     the cleften? (folds) cisternae?  
     the ribosomes (protein synthesis)

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- A) Rough ER is continuous with nucleus membrane
- B) Rough ER has ribosomes embedded in its membrane
- C) Rough ER is involved in protein synthesis

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- (a) - contains ribosomes *2*  
   - bound to the membrane *D*  
   - present in animal cell *I*

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Name Andrew Stone

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    - 1. HAS RIBOSOME ON IT MAKING IT LOOKS IN PROKARYOTES
    - 2. HAS A CROWN
    - 3. IS A FLATTEN SAC STRUCTURE THAT IS NEXT TO NUCLEUS

PO

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Name Dorothy Smith

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A) Rough ER

Protein passes through the ER

It's synthesized in Ribosomes (Rough bumpy part)

Proteins ~~Ribosomes~~ get sent into a vesicle to the golgi

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Name Kevin Choo

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⑥ golgi trafficking fates

- a constitutive secretion - contains phospholipids or integral proteins for cell membrane, released from golgi and fuse to PM.
- b regulated secretion - contains protein for exocytosis, vesicle buds from golgi and sit just inside PM until receiving signal to fuse and expel contents.
- c lysosomal - vesicle buds off of golgi containing proper enzymes and internal contents for maturation into a lysosome

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Name Lindsey Souissi

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    - B. 1. TRANSPORTED TO MEMBRANE OF CELL WHERE IT IS EXPELLED (BY EXOCYTOSIS)
    2. MOVED TO ANOTHER PART OF THE CELL WHERE IT WILL BE USED BY A PROTEIN
    3. TRANSPORTED INTO NUCLEAR ENVELOPE

B. 1. TRANSPORTED TO MEMBRANE OF CELL WHERE IT IS EXPELLED (BY EXOCYTOSIS)  
 2. MOVED TO ANOTHER PART OF THE CELL WHERE IT WILL BE USED BY A PROTEIN  
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Physiology 115  
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Name David Adams

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Constitutive Secretion: The vesicle brings components to the membrane and there is an immediate fusion and exchange.

Regulatory Secretion: The vesicle arrives and waits for a signal to fuse and release products.

Lysosome Secretion: A lysosome is filled with  $\text{H}^+$  to form an acid to digest components within.

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Name Chase Dudley

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A.) - continuous with Nuclear envelope  
- Ribosomes embedded in surface of Rough ER  
- proteins formed inside

B.) constitutive  
regulated

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*Sean and*

*(a) 1 - steroid hormones. RER is present in ovaries, testes and it helps to synthesis steroid hormones from cholesterol.*

*not really*

*2 - in hepatocytes - in liver for detoxification*

*Smooth*

*3 - In muscles where it form a specialized structure for Ca<sup>++</sup> reservation and pumping them out during contraction.*

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3 Trafficking fates for vesicles are

- 1) The vesicle goes immediately to the plasma membrane and becomes part of the membrane
- 2) Regulatory - The vesicle goes to the PM and waits until a receptor binds in a way that activates it.
- 3) Lysosomal - The vesicle goes into circulation & binds w/ a auto or heterophagocytosis in order to become a lysosome

**Qn 10**

**Physiology 115**  
Spring 2015

Name Torrie Thompson

### QUIZ #4

For the multiple choice questions, there is *one* and *only one best* answer. Use the back of the sheet if you need to complete answers.

1. Which structure in the mitochondria contains the proteins and lipids involved in the oxidation-reduction reactions of the electron transport system?
  - a. cytosol
  - b. matrix
  - c. intermembrane space
  - d. outer membrane
  - e. inner membrane
  
2. Which of these electron-accepting coenzymes will produce three (3) ATP molecules during oxidative phosphorylation?
  - a. FADH<sub>2</sub>
  - b. NADH
  - c. ethanol
  - d. lactate
  - e. CO<sub>2</sub>
  
3. Which of these is a function or feature in a lysosome?
  - a. contains digestive enzymes in its vesicle that will activate on acidification
  - b. has proton (H<sup>+</sup>)-ATPases in its membrane to pump H<sup>+</sup> into the vesicle
  - ~~c. is produced as a vesicle budding off the *trans* face of the Golgi complex~~
  - d. all of the above
  - e. none of the above
  
4. Do EITHER (a) OR (b)
  - (a) Give the names of three (3) things that fundamentally form or are characteristic of the rough ER
  - (b) What are the three (3) trafficking fates for vesicles coming off the Golgi complex (name & describe)?
 

on rough ER

a) Ribosomes ↑, smooth ER ~~OK~~ <sup>on rough ER</sup> seamlessly transitions into rough ER, rough ER sends proteins to golgi

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Physiology 115  
Spring 2015

Name Luke Nikitow

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- A)
1. Ribosomes on the "studded Exterior"
  2. uses "DNA polymerase" → RNA Polymerases
  3. synthesizes proteins

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**Physiology 115**  
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Name Peter Choc

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c. Lysosomal - Vesicle buds off of trans-face of Golgi as an endosome, full of proteins and enzymes to eventually form a Lysosome (requires fusion w/ a Heterophagic or Autophagic vesicle).  
Lysosome will create a "safe" environment for the high acidic content.

a. Constitutive - Vesicle leaves trans-face of Golgi, goes directly to plasma membrane and fuses immediately (generally exocytosis).

b. Regulated - Vesicle leaves trans-face of Golgi, goes to Plasma membrane or elsewhere in cell until it is signaled to fuse w/ the Plasma membrane or elsewhere in cell.

### QUIZ #4

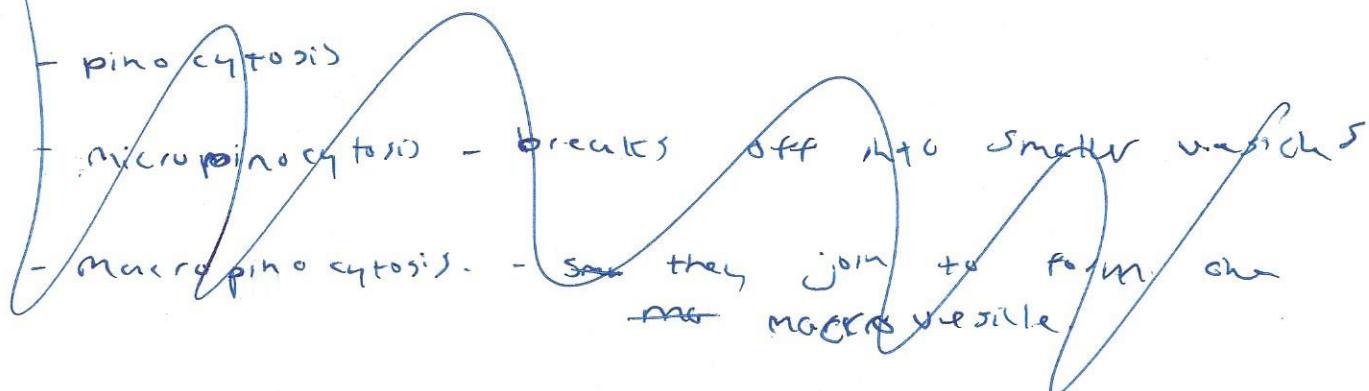
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    - **lysosomal trafficking** is when the vesicle travels from the Golgi to a lysosome and fuses its contents into the lysosome where they are broken down and then excreted from the cell
    - **regulated trafficking** is when the vesicle comes off the Golgi and waits at the membrane for an external receptor to activate the release of its contents outside the cell
    - **constitutive trafficking** occurs when the vesicle comes off the Golgi and can readily release its contents when it merges w/ the cell membrane

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    - a) ribosomes on the membrane creating the rough part. Also is a continuation of the ER + continues on to be the smooth ER. The rough ER faces the cis Golgi face. Vesicles bud off from the rough ER.
    - b) 1) a vesicle buds off and immediately fuses with the plasma membrane releasing its contents by exocytosis
    - 2) a vesicle buds off and sits near the plasma membrane until it is activated to fuse with the plasma membrane which causes a voltage change in the PM.
    - 3) vesicle buds off and does not fuse with the PM + is transported outside of the PM