

4.2 INTRODUCTION TO CELL TRANSDUCTION- 4.2 SIGNAL TRANSDUCTION – 4.4 CHANGES IN SIGNAL TRANSDUCTION

A. SUPPORT LEARNING VIDEOS:

Assignment #1 view straight through without taking notes:

4.2 INTRODUCTION TO CELL TRANSDUCTION-

4.3 SIGNAL TRANSDUCTION

“Signal Transduction Pathway...Bozeman.....9:25”

4.4 CHANGES IN SIGNAL TRANSDUCTION

“Signal Transmission and Gene Expression...Bozeman....8:37”

B. TRANSDUCTION VS. TRANSMISSION

TRANSDUCTION (TRANSDUCE) = changing message or signal into another form of communication. This happens at functional and chemical level. This is like transferring/converting an electronic format into a new or different format. TRANSMISSION-(TRANSMIT) is the manner in which a message is; the HOW if you will. This is required in order to get information from one area to another area of the body be that in a cell, cell to cell, parts of the body or the entire body. Think back on the 4.1 - 3 PATHWAYS OF CELL COMMUNICATION

C. 1.SIGNAL-----2.TRANSDUCTION-----3.TRANSMISSION- this is how cells communicate within themselves, to other cells and to our body as a whole.

CELL COMMUNICATION IS

CHEMICAL==TECHNICAL==PRECISE==REGULATED==SEQUENTIAL==EFFECTIVE

Assignment #2 – D and E. Watch the two videos above again, pausing and taking notes. It is complicated involving many components and steps. Just catch relative vocab and summarize the key concepts, some of which appear above in letters A-C

D. “Signal Transduction Pathway...Bozman.....9:25”

4.2 INTRODUCTION TO CELL TRANSDUCTION- 4.3 SIGNAL TRANSDUCTION

See next page

ASSIGNMENT -BIG IDEA! Now can you use your notes to complete the following paragraph by filling in the appropriate terms and concepts as chosen from the word choice list provided below:

CHOICE LIST – ligands, phosphoralization ATP, channel protein, protein kinase, , cell membrane, cyclic adenosine monophosphate, phosphates, glycogen, cell membrane, channel proteins

Signal molecules called 1. _____ land on the phospholipid bilayer otherwise know as the 2. _____ but they cant get in. They eventually find their respective 3. _____ and are able to enter the cell. These ligands then stimulates a burst of chemicals which acts on mass amounts of 4. _____ and strips it down to cAMP (5. _____ . Recalling that when we break down ATP by removing 6. _____ it in turn produces a mass amount of energy released all at once. Now that this mass episode of ATP breakdown has occurred there is a multitude of cAMP suddenly available which in turn acts on the enzyme 7. _____ protein kinase which in turn stimulates the 8. _____ cascade whereby vast amounts of 9. _____ in the liver is broken down which into their component molecules of 10. _____ which in turn creates an sudden and vast amount of such glucose molecules to be suddenly metabolized producing yet another explosion of energy,

E. “Signal Transmission and Gene Expression...Bozeman....8:37”

4.4 CHANGES IN SIGNAL TRANSDUCTION

Using your notes from the film just viewed, complete the following sequence and pathways diagram below, Use you choice list of items as they appear below.

CHOICE LIST : Phosphoralization occurs acting on the ... , Adrenal gland, Endocrine, Adrenaline, Epinephrine, Gene Expressions produce proteins, Cellular Functions increase, Glycogen in the liver ,

Which in broken down into Glucose,

Which simultaneously metabolized resulting in a ENERGY EXPLOSION

CREB a cellular transcription factor is produced and acts on the

The (1.) _____ as part of your(2) _____ system
produces

(3.) _____

which is made of

(4.) _____

which then takes two pathways at the cellular and gene level

(5.) _____

(6.) _____

which leads to the action of?

which creates...

(7.) _____

(8.) _____

Which both act on the ...

(9.) _____

Which is then reduced to...

(10.) _____

Which is then metabolized all at once thus producing an.....

(11.) _____

