

## PROBLEM SET – UTERINE PHYSIOLOGY

Cell to cell communication in the myometrium is primarily by means of

- a) anchoring junction
- b) chemical synapses
- c) gap junctions
- d) plasmodesmata
- e) hemidesmosomes

The plasma membranes between myometrial cells are connected by 6 subunit structure referred to as a

- a) connexon
- b) actin fibril
- c) myosin fibril
- d) gap junction
- e) open channel

The resistance of inter-myometrial gap junctions at term is approximately

- a) 50 ohm/cm
- b) 200 ohm/cm
- c) 1000 ohm/cm
- d) 50 ohm-cm
- e) 100 ohm-cm

Which of these substances decreases the number and density of gap junctions ?

- a) connexin-43
- b) oxytocin
- c) estrogen
- d) progesterone
- e) prolactin

Calcium is stored in the

- a) desmosomes
- b) sarcoplasmic reticulum
- c) ryanodine receptor
- d) calmodulin
- e) cell membrane

One useful pharmacologic agent that may be used clinically to reduce uterine activity is

- a) nifedipine
- b) thyroxine
- c) FSH
- d) Adenosine
- e) Serine phosphate

The main purpose of the intracellular matrix in the myometrium is to

- a) provide enzymatic degradation of used myometrial fibers
- b) transmit contractile forces
- c) increase the solubility of collagen
- d) permit the myometrium to behave in an elastic fashion
- e) store calcium in an ionized state

A hexamer containing a head and a tail

- a) actin
- b) myosin
- c) ATP-ase
- d) Sperm
- e) Calmodulin

The difference between oxytocin and arginine vasopressin is

- a) one disulfide bond
- b) one amino acid
- c) two amino acids
- d) spatial conformation only
- e) three amino acids

At term, oxytocin receptors

- a) increase 5 fold
- b) remain relatively constant
- c) increase 80 fold
- d) increase only if oxytocin is administered
- e) increase only if prostaglandin is given

Oxytocin receptors are found in the highest concentrations in

- a) the cervix
- b) the fundus
- c) the lower segment of the uterus
- d) the vagina
- e) the fundus and the cervix

Which of the following (choose one or more) cause the myometrium to contract

- a) PGE<sub>1</sub>
- b) PGE<sub>2</sub>
- c) PGF<sub>2</sub>
- d) PGI<sub>2</sub>
- e) TxA<sub>2</sub>

Which of the following is incorrect ?

- a) There are over 20 types of collagen
- b) Type II collagen is not fibrillar
- c) Proline and glycine create left handed helical configurations
- d) Collagen is a triple stranded structure
- e) Collagen constitutes 25% of mammalian protein

In the lumen of ER threepro-alpha chains of collagen bond to form procollagen. These bonds are made of

- a) lysine
- b) serine
- c) calcium
- d) magnesium-serine residues
- e) hydroxyproline

Increased space between collagen bundles are noted as early as

- a) 8 weeks
- b) 16 weeks
- c) 24 weeks
- d) 32 weeks
- e) 36 weeks

A 24 year old gravida 4 para 0 is now 10 weeks pregnant. She has had three prior pregnancy losses. The first at 8 weeks, the second and third at 16 weeks. The fetuses were chromosomally normal. It is very likely that she may be helped by (choose as many as are correct)

- a) placing a mersilene band at the fundus
- b) giving her progesterone for the first 16 weeks
- c) giving her estrogen for the first 16 weeks
- d) placing a mersilene band close to the internal os
- e) placing a mersilene band at the external os