## Review 16

## Reproduction

In order to maintain constant ploidy from gen to gen, must reduce chromosome number by 1/2 prior to fertilization

- Ploidy = # of complete sets of chromosomes in a cell
  diploid (2N) = 2 sets haploid (N) = 1 set triploid (3N) = 3 sets, etc.
- Homologous chromosomes carry the same kinds of info on them. e.g. human #1's, #2's, etc.
- Homologous sets of chromosomes also carry same kinds of information on them. e.g. set from mom and set from dad

Enter meiotic cell divisions! Meiotic cell divisions result in:

- halving the chromosome number (2N ➡ 1N)
- increasing genetic variability of gametes

Be sure to know <u>process</u> of meiosis, especially events of

➔PROPHASE I (crossing-over, resulting in genetic recombination)

➔ANAPHASE I (independent assortment of chromosomes)

Be sure to know <u>result</u> of meiosis, especially

➔reduction of ploidy by half and

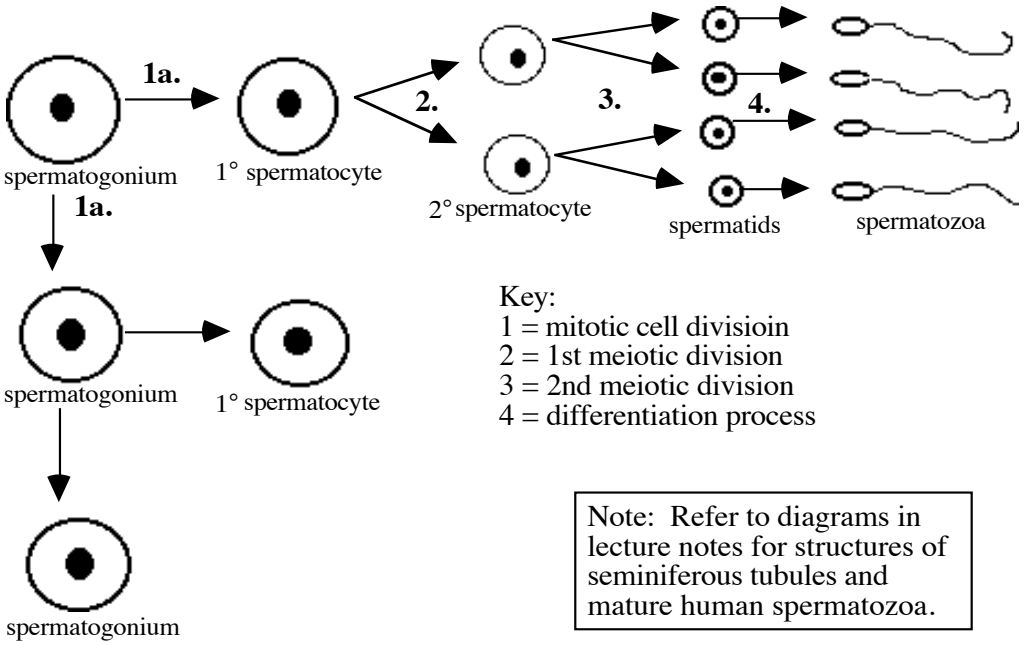
➔new genetic variations.

## HUMAN *MALE* GAMETE PRODUCTION

Sperm produced in testes

interstitial cells: prod. some male hormones, e.g. testosterone

seminiferous tubules: sperm production, as follows:




Key:
1 = mitotic cell divisioin
2 = 1st meiotic division
3 = 2nd meiotic division
4 = differentiation process

Note: Refer to diagrams in lecture notes for structures of seminiferous tubules and mature human spermatozoa.

## Review 16, con't

- Spermatogonia are STEM CELLS, cells which divide mitotically and provide a source of cells for the continued production of highly specialized cells.
  - other stem cells produce rbc's, wbc's, skin and other lining cells, etc., etc.
- Path of sperm: from seminiferous tubules to epididymous (final maturation and storage) to vas deferens to urethra then out
  - glands which contribute to semen: seminal vesicles, prostate gland, bulbourethral gland