

Reproduction 101 – Glossary

(adapted from *Contraception and Fertility Control in Dogs and Cats*, ACC&D 2013)

ablation – removal of a part (usually by cutting)

agonist – a drug that has affinity for and stimulates physiologic activity at cell receptors normally stimulated by naturally occurring substances (*i.e.* A GnRH agonist binds to and stimulates GnRH receptors on the pituitary.)

antagonist – a drug that binds to a cell's receptor without eliciting a biological response and can prevent the naturally occurring substance from binding, therefore blocking the normal biological response (*i.e.* A GnRH antagonist will block the GnRH receptor on the pituitary gland, preventing the binding of GnRH).

antibody – an immunoglobulin that is made by white blood cells in response to exposure to an antigen

antigen – a substance that is administered to an animal to elicit an immune response (usually refers to a protein substance)

benign prostatic hypertrophy (BPH) – enlargement of the prostate that is not cancerous; commonly seen in older dogs and men

castration – technically removal of either the ovaries of females or the testicles of males, but commonly used only for males, and synonymous with neuter

corpus luteum (CL) - a transient endocrine structure that forms at the site of an ovulated follicle; produces progesterone; plural corpora lutea

down-regulation – used in this report to mean the reduction of the number of receptors or the activity of those receptors, which result in a desensitization to the substance that binds the receptor; for example, GnRH no longer causes its biological action when the receptors on the pituitary gland cells are down-regulated.

estrous – adjective; the recurring female reproductive cycle of most mammals, including dogs and cats

estrus – noun; also known as “heat”; the time during which an animal is ovulating and receptive to breeding by a male; it is characterized by specific hormonal and behavior changes in the female

fecundity – ability to produce offspring rapidly and in large numbers

fertilization – the act of rendering eggs capable of further development by contact with sperm

follicle stimulating hormone (FSH) – one of the hormones of the anterior pituitary that stimulates the growth of ovarian follicles in females and stimulates spermatogenesis in males

follicles – sites on the ovary in which the oocytes (eggs) develop; these are fluid-filled and rupture at ovulation

gamete – the male (sperm) or female (oocyte) reproductive cell; carries half of the organism's genetic material

gonadotropin releasing hormone (GnRH) - the hormone that is produced in the brain, released in a pulsatile manner, and stimulates the pituitary gland to release luteinizing hormone and follicle stimulating hormone. It is a small ten amino acid peptide.

gonadotroph – specific cells in the pituitary gland that have receptors that bind GnRH, These cells then synthesize and secrete the gonadotrophins (luteinizing hormone and follicle stimulating hormone).

good manufacturing practice (GMP) – the list of practices to be followed in manufacturing pharmaceutical products to meet worldwide regulatory requirements

heat – also known as estrus (see estrus above)

histopathology – a study of the microscopic appearance of tissues to look for any pathological changes caused by an illness, toxin, drug treatment, etc.

hypothalamus – an area of the brain that controls crucial body functions such as hormone release, water balance, body temperature, sleep and food intake, among other functions. Its importance in the reproductive system is that the neurons that produce GnRH are located in the hypothalamus.

immunocontraception - causing an animal to become infertile by injecting it with an antigen that causes it to mount an immune response to some component of the reproductive system, such as eggs, zona pellucida, sperm or GnRH.

luteinizing hormone (LH) – one of the hormones of the anterior pituitary that acts to cause ovulation of mature follicles, and the secretion of estrogen in females and stimulates the testes to produce testosterone in males

luteinizing hormone releasing hormone (LHRH) – another name for gonadotropin releasing hormone (GnRH)

negative feedback – the condition of maintaining a constant output of a system by exertion of an inhibitory control on a key step in the system by a product of that system

neuter – common term usually used to mean removal of the testicles of male animals

oligonucleotide – a relatively small fragment of DNA (usually about 2-20 bases)

oocyte – immature female gamete; after the oocyte matures, it is referred to as an egg

ovariectomy – surgical removal of the ovaries

ovariohysterectomy – surgical removal of the ovaries and uterus; generally referred to as spay when referring to female companion animals

pituitary gland – a gland located at the base of the brain, which, under influence from the brain, releases a number of important hormones that regulate body function (thyroid gland, gonads, adrenal gland and other endocrine organs)

progesterone – a hormone produced primarily by the corpora lutea; maintains conditions for gestation

progestins – a class of compounds that are structurally similar to progesterone, and that mimic its biological effects

receptor – a specific molecule on the surface or within the cell that recognizes and binds with other specific molecules, such as hormones

spay – when used in reference to dogs and cats, spay means ovariohysterectomy, or surgical removal of the uterus and ovaries; when used in reference to cattle, spay means surgical removal of the ovaries

subcutaneous – under the skin

zona pellucida - a transparent, non-cellular layer or envelope of uniform thickness surrounding an oocyte (egg)