

ABSTRACTS
*** Author Presenting Paper**

103 Molecular regulation of progesterone secretion in the ovine corpus luteum. G. D. Niswender*, *Colorado State University, Fort Collins, CO.*

Cholesterol provided by low density or high density lipoprotein is the precursor for biosynthesis of progesterone. Once inside the cell, cholesterol can be used for steroidogenesis or esterified by long-chain fatty acids and stored as cholesterol esters in lipid droplets. When needed for steroidogenesis, free cholesterol is transported to the mitochondrion with the involvement of cytoskeletal elements and sterol carrier proteins. Transport of cholesterol from the outer to the inner mitochondrial membrane is both the rate-limiting step in progesterone biosynthesis and the step most dramatically influenced by second messengers. Steroidogenic acute regulatory protein (StAR) and peripheral type benzodiazepine receptors (PBR) have been shown to be involved in this transport. Endosepine, the natural ligand for PBR, also appears to be involved in regulation of the rate of cholesterol transport to the inner mitochondrial membrane where the cytochrome P450 cholesterol side chain cleavage enzyme complex converts the cholesterol to pregnenolone. Pregnenolone is then converted to progesterone by the 3β hydroxysteroid dehydrogenase/ $\Delta 5, \Delta 4$ isomerase in the smooth endoplasmic reticulum. Progesterone appears to diffuse through the cell membrane. The generally positive short-term and long-term effects of stimulation of protein kinase (PK) A second messenger pathway and the negative effects of the PKC pathway will be discussed.

Key Words: Progesterone, Reproduction, Mini-symposium