Background: Translocator protein (TSPO) is an 18 kDa mitochondrial drug- and cholesterol-transporting protein involved in steroid hormone synthesis and mitochondrial homeostasis in a variety of cell types (1,2). Originally thought to play a role exclusively in steroid synthesis in steroidogenic cells, subsequent research studies have implicated TSPO in a variety of pathologies in a broad range of tissues including progression of breast cancer, neuroinflammation, and neurological disorders (1,3-5). TSPO was first identified by its ability to bind benzodiazepines in peripheral tissues and glial cells, hence its alternate name Peripheral Benzodiazepine Receptor (PBR).

TSPO Antibody recognizes endogenous levels of total TSPO protein.

Specificity/Sensitivity: TSPO Antibody recognizes endogenous levels of total TSPO protein.

Source/Purification: Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues near the carboxy terminus of mouse TSPO by immunizing animals with a synthetic peptide corresponding to residues near the carboxy terminus of mouse TSPO. Subsequent research studies have implicated TSPO in a variety of pathologies in a broad range of tissues including progression of breast cancer, neuroinflammation, and neurological disorders (1-3,5). TSPO was first identified by its ability to bind benzodiazepines in peripheral tissues and glial cells, hence its alternate name Peripheral Benzodiazepine Receptor (PBR).

TSPO has been shown to modulate an array of cellular functions; it is critical for steroidogenesis, modulates mitochondrial function and metabolism, and plays a role in both cell proliferation and apoptosis (6-8). TSPO is found in the outer mitochondrial membrane where it coordinates with Steroidogenic Acute Regulatory Factor (StAR) to transport cholesterol into the mitochondria and is critical for steroidogenesis and tumor progression (9,10). This is illustrated by studies that show the non-aggressive, hormone-dependent cell line, MCF7, expresses low levels of TSPO whereas the more aggressive, metastatic, and hormone-independent cell line, MDA-MB-231, expresses high levels of TSPO (10). This study, and others, suggest that TSPO may be an important regulator of hormone-dependent tumor progression.

Numerous investigations have concluded that due to its high affinity for pharmacological compounds and up-regulation in disease, TSPO is an attractive target for diagnosis and treatment of tumor progression, neuroinflammation, neurodegeneration, and neurological/psychiatric disorders (11-15).

Recommended Antibody Dilutions: Western blotting 1:1000

Important: For western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween-20 at 4°C with gentle shaking, overnight.