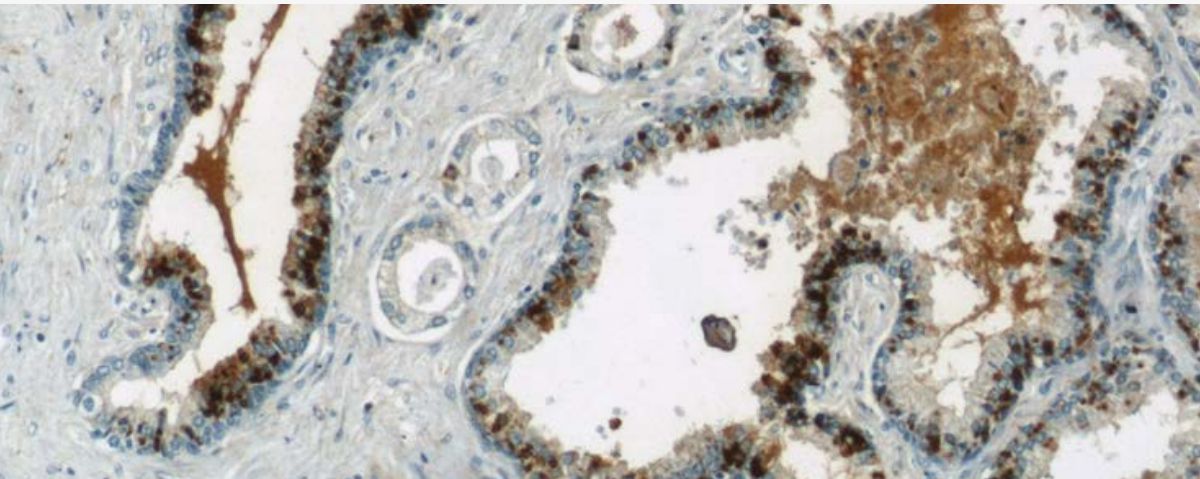


MITOCHONDRIA RESEARCH FOCUS

The center of cellular signaling
and energetic balance.

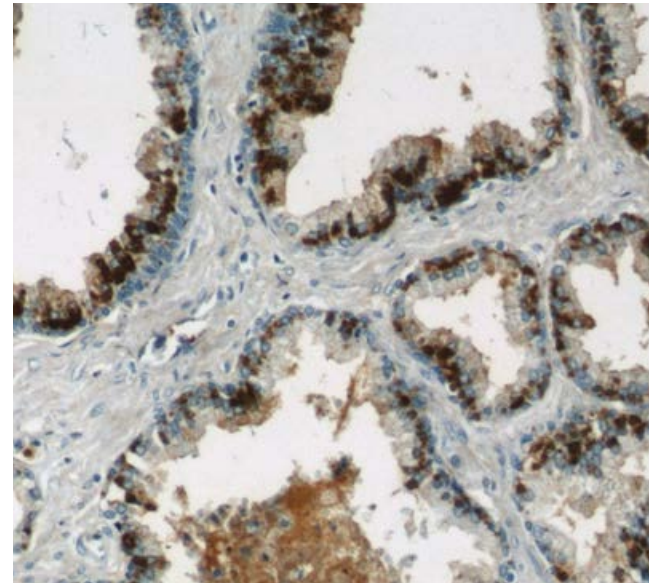
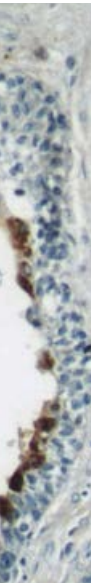


IHC of paraffin-embedded human prostate hyperplasia using COX2 antibody (12375-1-AP) at a dilution of 1:50 (10x objective).



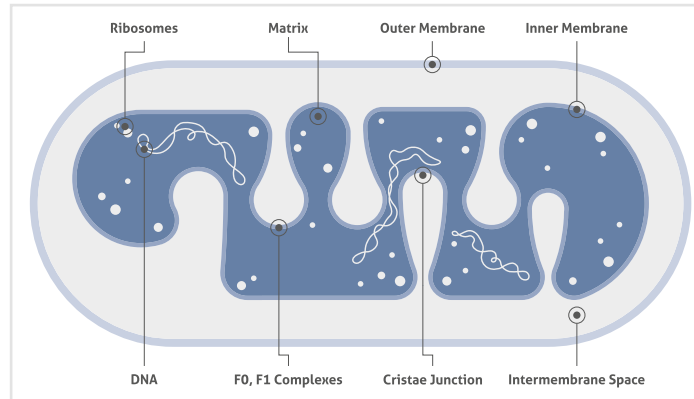
CONTENTS

| | |
|--------------|-------------------------------------|
| <u>3</u> | Introduction |
| <u>4-5</u> | Mitochondrial Markers |
| <u>6</u> | Citric Acid Cycle |
| <u>7</u> | Mitochondrial Respiratory Complexes |
| <u>8</u> | Mitochondrial Fission & Fusion |
| <u>9</u> | Mitochondria-Mediated Apoptosis |
| <u>10</u> | Mitochondrial Autophagy |
| <u>11-12</u> | Mitochondrial Translation |
| <u>13</u> | Further Reading |
| <u>14</u> | Contact Us |



INTRODUCTION

- Mitochondria are important cellular organelles in the maintenance of cellular energy balance, cellular oxidative stress generation, and the maintenance of calcium homeostasis.
- Links to cancer, apoptosis, autophagy, and hypoxia have brought mitochondria to the forefront of scientific studies in recent years.

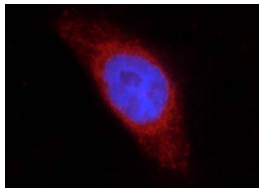


MITOCHONDRIAL MARKERS

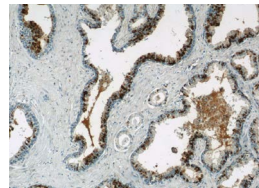
Knowledge of the subcellular location of a protein may reveal the potential role it plays in a variety of cellular processes.

Product Focus

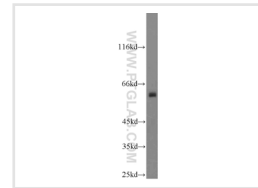
- **Antibody Name**
COX2
- **Catalog Number**
12375-1-AP
- **Type**
Rabbit Polyclonal
- **Publications**
30 publications
- **KO/KD Tested**
No



Immunofluorescent analysis of HepG2 cells using COX2/ Cyclooxygenase 2 Antibody (12375-1-AP) at a dilution of 1:25 and Rhodamine-Goat anti-Rabbit IgG.



Immunohistochemical of paraffin-embedded human prostate hyperplasia using COX2 antibody (12375-1-AP) at a dilution of 1:50 (10x objective).



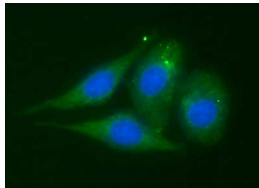
HEK-293 cells were subjected to SDS PAGE followed by western blot with COX2 antibody (12375-1-AP) at a dilution of 1:600.

MITOCHONDRIAL MARKERS

Knowledge of the subcellular location of a protein may reveal the potential role it plays in a variety of cellular processes.

Product Focus

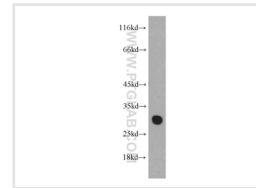
- **Antibody Name**
VDAC1
- **Catalog Number**
10866-1-AP
- **Type**
Rabbit Polyclonal
- **Publications**
24 publications
- **KO/KD Tested**
siRNA Knockdown



Immunofluorescent analysis of HepG2 cells using Porin antibody (10866-1-AP) at a dilution of 1:50 and Alexa Fluor 488-conjugated AffiniPure Goat Anti-Rabbit IgG(H+L).

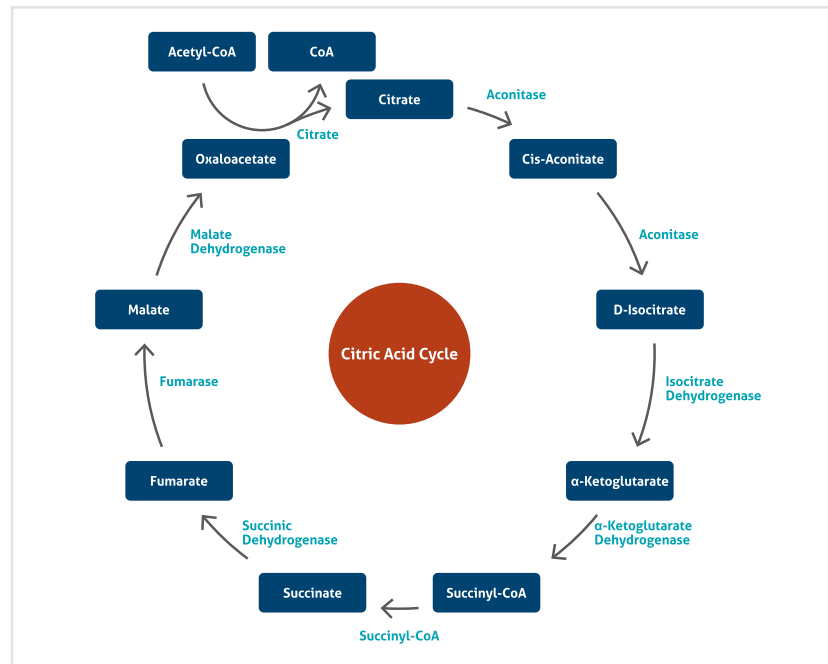


Immunohistochemical of paraffin-embedded human colon using VDAC1 antibody (10866-1-AP) at a dilution of 1:50 (10x objective).



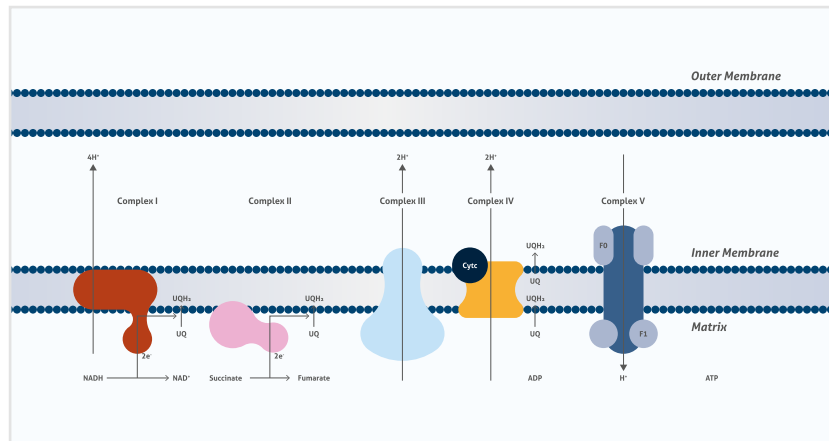
HEK-293 cells were subjected to SDS PAGE followed by western blot with VDAC1 antibody (10866-1-AP) at a dilution of 1:500.

CITRIC ACID CYCLE



MITOCHONDRIAL RESPIRATORY COMPLEXES

The mitochondrial respiratory chain is the final and most important step for cellular respiration. Its function is biological oxidation by the transfer of electrons from NADH and succinate to oxygen, generating a proton gradient across the inner membrane.



MITOCHONDRIAL FISSION & FUSION

Mitochondria are remarkably dynamic organelles undergoing frequent fusion and fission events. The opposing processes of fission and fusion maintain mitochondrial morphology and the equilibrium that ensures maintenance of mtDNA and metabolic mixing, bioenergetic functionality, and organelle number.

Mitochondrial fusion occurs in three stages:

- 1. Docking of two mitochondria via their outer membranes.**
- 2. Fusion of outer membranes.**
- 3. Fusion of inner membranes.**

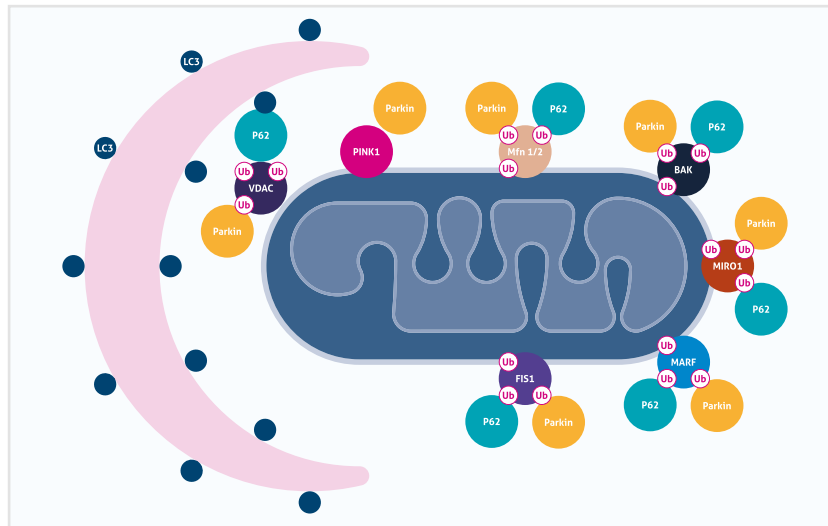
MITOCHONDRIA-MEDIATED APOPTOSIS

Apoptosis is the process of programmed cell death (PCD). Mitochondria-mediated apoptosis occurs in response to a wide range of death stimuli, including:

- **Activation of tumor suppressor proteins**
- **Oncogenes**
- **DNA damage**
- **Chemotherapeutic agents**
- **Serum starvation**
- **Ultraviolet radiation.**

MITOCHONDRIAL AUTOPHAGY

Mitochondrial autophagy (mitophagy) is the process of selective removal of damaged mitochondria by autophagosomes, which subsequently transfer them to lysosomes for destruction.

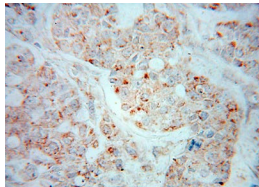


MITOCHONDRIAL TRANSLATION

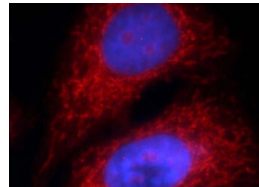
The mitochondrial genome (mtDNA) contains the blueprint for thirteen proteins and all the RNA molecules necessary and sufficient for intra-mitochondrial protein synthesis.

Related Antibodies

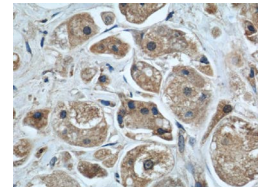
- | | | |
|---|--|-----------------------------|
| – Antibody Name MRPS18B | – Type Rabbit Polyclonal | – KO/KD Tested No |
| – Catalog Number 16139-1-AP | – Publications 23 publications | |



Immunohistochemical of paraffin-embedded human breast cancer using MRPS18B antibody (16139-1-AP) at a dilution of 1:50 (40x objective).



Immunofluorescent analysis of HepG2 cells using MRPS18B antibody (16139-1-AP) at a dilution of 1:50 and Rhodamine-labeled goat anti-rabbit IgG (red).



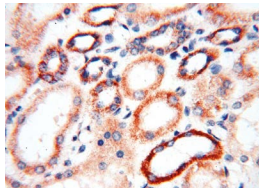
Immunohistochemical of paraffin-embedded human breast cancer using MRPS18B antibody (16139-1-AP) at a dilution of 1:50 (40x objective).

MITOCHONDRIAL TRANSLATION

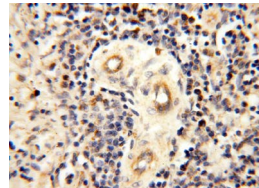
The mitochondrial genome (mtDNA) contains the blueprint for thirteen proteins and all the RNA molecules necessary and sufficient for intra-mitochondrial protein synthesis.

Related Antibodies

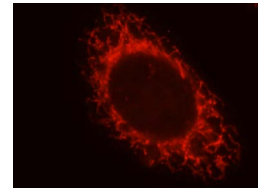
- | | | |
|--|--|------------------------------|
| – Antibody Name MRPS27 | – Type Rabbit Polyclonal | – KO/KD Tested Yes |
| – Catalog Number 17280-1-AP | – Publications 11 publications | |



Immunohistochemical of paraffin-embedded human kidney using MRPS27 antibody (17280-1-AP) at a dilution of 1:100 (40x objective).



Immunohistochemical of paraffin-embedded human spleen using (MRPS27 antibody) 17280-1-AP at a dilution of 1:100 (40x objective).



Immunofluorescent analysis of HepG2 cells, using MRPS27 antibody (17280-1-AP) at a dilution of 1:25 and Rhodamine-labeled goat anti-rabbit IgG (red).

FURTHER READING

Learn more about...

- **Mitochondrial Markers**
- **Citric Acid Cycle**
- **Mitochondrial Respiratory Complexes**
- **Mitochondrial Fission & Fusion**
- **Mitochondria-Mediated Apoptosis**
- **Mitochondrial Autophagy**
- **Mitochondrial Translation**
- **Mitochondrial Protein Import**

Further Information

Visit ptglab.com for more information about [mitochondria](#) and Proteintech's full range of related antibodies.

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Support

Available 24 hours via Live Chat and 9–5 (CDT) via phone.

Please visit us at www.ptglab.com for more information about our antibodies and technical tips.

