

CYTOSKELETON MARKERS

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Introduction

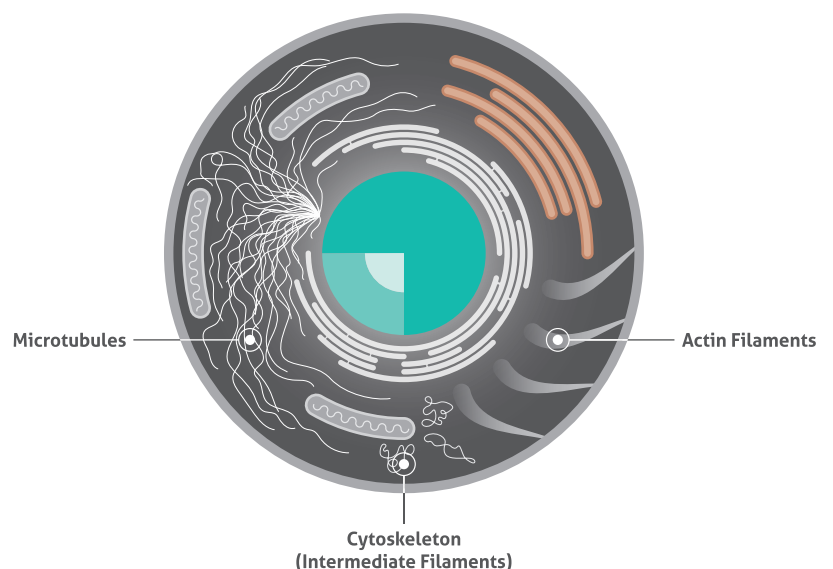
The cytoskeleton is a three-dimensional network supporting and stabilizing the cell. All cells, even bacteria, have a type of cytoskeleton. It is responsible for the shape of the cell and its mechanical properties. Many dynamic cellular processes cooperate with the cytoskeleton, such as cell motion, cell division, intracellular transport, and cell signaling. Therefore, the cytoskeleton interacts with several cytoplasmic proteins or organelles.

The cytoskeletal network is composed of three different protein structures named filaments: microtubules, microfilaments (actin), and intermediate filaments. These proteins form their own unique networks within the cell that have different interdependent functions.

Main Functions of the Cytoskeleton

Structural support
Cell trafficking
Transducer of mechanical signals
Associated with several diseases
Cellular signaling

Cell Illustrating The Three Different Cytoskeleton Structure Proteins



Most Popular Cytoskeleton Markers From Proteintech

Antibody Name	Catalog Number	Type	Applications
ACTA2/alpha smooth muscle actin	5 23081-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
alpha Tubulin	4 11224-1-AP	Rabbit Poly	ELISA, FC, IF, IHC, IP, WB
beta Actin	423 20536-1-AP	Rabbit Poly	ELISA, IF, IHC, WB
beta Actin	399 60008-1-IG	Mouse Mono	ELISA, FC, IF, IHC, WB
beta Tubulin	11 10068-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB
Cofilin	5 10960-1-AP	Rabbit Poly	ELISA, IF, IHC, WB
Cytokeratin 17 specific	17516-1-AP	Rabbit Poly	ELISA, FC, IF, IHC, IP, WB
Desmin	2 60226-1-IG	Mouse Mono	ELISA, IHC, WB
GFAP	5 60190-1-IG	Mouse Mono	ELISA, IF, IHC, IP, WB
Palladin	5 10853-1-AP	Rabbit Poly	ELISA, FC, IF, IHC, IP, WB
Vimentin	54 10366-1-AP	Rabbit Poly	ELISA, FC, IF, IHC, WB

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Actin Filament Markers

Actin is an abundant protein in all eukaryotic cells. Monomers of the globular actin (G-actin) polymerize to form actin filaments (F-actin), long and thin fibers. These fibers have a diameter of ca. 5–9 nm and form the thinnest of all cytoskeleton fibers. Therefore, they are also named microfilaments. Actin filaments are very flexible and show a helical structure.

Actin filaments form bands close to the plasma membrane. They can form their own network, shaped by several actin-binding proteins. Many different cellular processes related to cell shape or cell motion depend on actin filaments. They are responsible for the mechanical strength of the cell and connect cytoplasmic and transmembrane proteins.

Related Antibodies

Antibody Name	Catalog Number	Type	Applications
ACTN4	4 10996-1-AP	Rabbit Poly	ELISA, FC, IF, IHC, IP, WB
ACTR10	1 20101-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB
ARP2	1 10922-1-AP	Rabbit Poly	ELISA, IHC, WB
ARP3	2 13822-1-AP	Rabbit Poly	ELISA, IF, IP, WB
ARP5	1 21505-1-AP	Rabbit Poly	ELISA, IF, IP, WB
CAPG-Specific	1 19535-1-AP	Rabbit Poly	ELISA, IHC, WB
CAPZA1	4 11806-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
CORO1A	2 17760-1-AP	Rabbit Poly	ELISA, IP, WB
CORO1C	2 14749-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB
DBNL	1 13015-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB
Fascin	1 14384-1-AP	Rabbit Poly	ELISA, IHC, WB

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Intermediate Filament Markers

Intermediate filaments are polymers of different proteins, depending on the cellular context. Thus, intermediate filaments do not have as rigidly defined a structure as actin filaments or microtubules.

Regardless of the composition, intermediate filaments have a diameter of around 10 nm. These filaments are less dynamic and flexible than microtubules and actin filaments.

Related Antibodies

Antibody Name	Catalog Number	Type	Applications
NF-H	21471-1-AP	Rabbit Poly	ELISA, IHC, WB
NF-L	60189-1-IG	Mouse Mono	ELISA, IHC, WB
NF-M-Specific	20664-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB

Microtubules Markers

Microtubules form the most rigid part of the cytoskeleton and are responsible for the intracellular movement of organelles or proteins. Microtubules are 20 nm in diameter and are composed of alpha and beta tubulin subunits. The formation of microtubules depends on the temperature and available tubulins. Microtubule-associated proteins (MAPs) regulate the dynamics of microtubules within a cell.

Related Antibodies

Antibody Name	Catalog Number	Type	Applications
acetylated Tubulin (Lys40)	2 66200-1-IG	Mouse Mono	ELISA, IF, IHC, WB
TBCB	15782-1-AP	Rabbit Poly	ELISA, IF, IP, WB
TUBGCP3	3 15719-1-AP	Rabbit Poly	ELISA, WB
TUBGCP4	17088-1-AP	Rabbit Poly	ELISA, IHC, WB
TUBGCP5	14620-1-AP	Rabbit Poly	ELISA, WB

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