

### Actin probes (phalloidins)

Phalloidin is a high-affinity probe for F-actin that is made from the toadstool "Death Cap" (*Amanita phalloides*). Used at nanomolar concentrations, phalloidins are convenient probes for labeling, identifying, quantitating, and stabilizing F-actin in fixed and permeabilized tissue sections, cell cultures or cell-free experiments. Phalloidin binds to actin at the junction between subunits (Barden et al, 1987 ; Faulstich et al, 1993 ; Steinmetz et al, 1998). Because this is not a site at which many actin-binding proteins bind, most of the F-actin in cells is available for phalloidin labeling.

These properties make phalloidin more attractive than actin-specific antibodies for fluorescence microscopy.

FluoProbes® prepares phalloidin of highest purity with superior FluoProbes® dyes.

Literature:

Adami, R., et al (1999) Rhodamine phalloidin F-actin. Critical concentration versus tensile strength. *Eur.J.Biochem.* 263, 270-275.

#### Phalloidin – FluoProbes® FITC

Description	Cat.#	Qty
Phalloidin – FluoProbes® FITC	FP-47548A	300 tests

#### Phalloidin – FluoProbes® 505

FluoProbes® 505 is used alternatively to FITC, but with the stability of rhodamine\*.

Description	Cat.#	Qty
Phalloidin – FluoProbes® 505	FP-AZ0130	300 tests

#### Phalloidin – FluoProbes® 547

FluoProbes®547 (557/574 nm) is used alternatively to Rhodamines, Cy3, AF546\*.

Description	Cat.#	Qty
Phalloidin – FluoProbes® 547	FP-AZ0330	300 tests

#### Phalloidin – FluoProbes® 647

FluoProbes®647 (652/673 nm) is used alternatively to AF647 and Cy5\*.

Description	Cat.#	Qty
Phalloidin – FluoProbes® 647	FP-BA0320	300 tests

#### Phalloidin – FluoProbes® 682

FP682 (690/709 nm) is used alternatively to Cy7\*

Description	Cat.#	Qty
Phalloidin – FluoProbes® 682	FP-BG0480	300 tests

#### Phalloidin – SR101

See more information about SR101

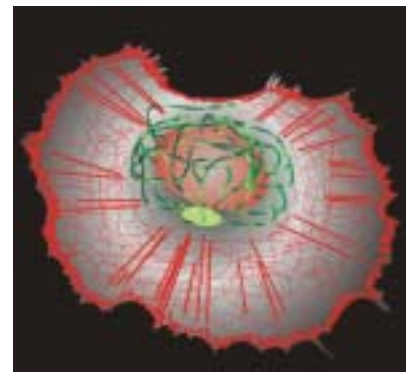
Description	Cat.#	Qty
Phalloidin – SR101	FP-033991	300 tests

#### Phalloidin – Rhodamine

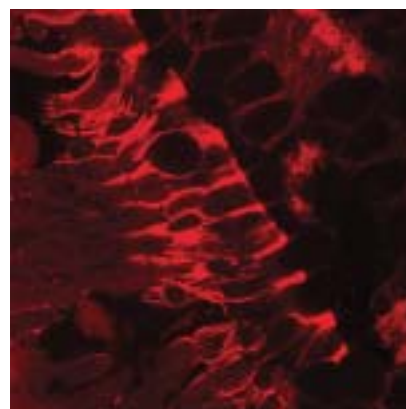
Rhodamine label\*

Please inquire for other dyes.

Description	Cat.#	Qty
Phalloidin – Rhodamine	FP-475741	300 tests



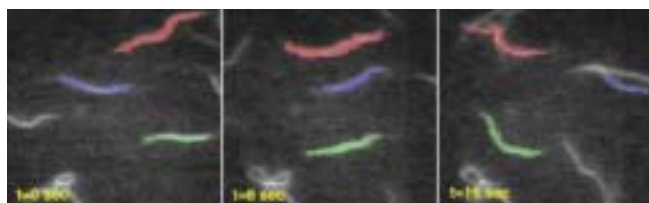
A schematic representation of cytoskeleton in a keratocyte, with actin fibers [straight thick lines (red)], and microtubules [twisted thin lines].



#### Technical tip

Microtubules are highly dynamic structures within the cell, and can be very difficult to preserve satisfactorily. Fixation in ice-cold methanol for 10 minutes works well, but distorts their 3D structure (i.e. destroys phalloidin-actin binding site). Crosslinking fixatives are, therefore, better suited for confocal work : best preservation is obtained with glutaraldehyde, at 37°C (mammalian cells) to prevent spontaneously disassembling, and in PIPES, pH 6.9 or in imidazole buffer. Following fixation 0.5 % SDS for 10 minutes consistently improves uniformity of staining as well as decreased background fluorescence, excepted for actin which phalloidin binding site is affected (so TritonX100 should be used). In a good fixation, microtubules should appear as long continuous filaments, not as beaded, broken segments. In addition, the astral microtubules of mitotic spindles should be present and distinct.

\* See more information on labels pages B51-84.

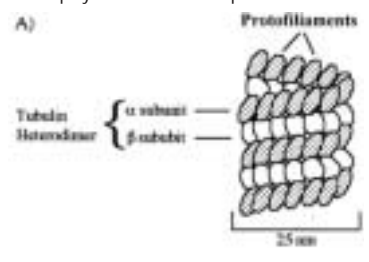


# Cell Biology - Study/Probes

## Cell Structure Probes

### Technical tip

Tubulin is composed of a heterodimer of two closely related 55 kDa proteins called  $\alpha$  and  $\beta$  tubulin. It is highly conserved throughout the eukaryotic kingdom. Consequently, tubulin isolated from bovine brain tissue allows to assay proteins originating from many diverse species. Tubulin polymerizes to form structures called microtubules (MTs). When tubulin polymerizes it initially forms protofilaments, microtubules consist of 13 protofilaments and are 25 nm in diameter, each mm of microtubule length being composed of 1650 heterodimers. Microtubules are highly ordered fibers that have an intrinsic polarity, shown schematically in figure A. Tubulin can polymerize from both ends in vitro, however, the rate of polymerization is not equal.



### Tubulin probes

Bovine brain tubulin has been modified to contain covalently linked rhodamine or fluorescein at random surface lysines at a 1 to 1 stoichiometry with tubulin subunits. One unit of fluorescent tubulin is defined as 1  $\mu$ g of protein. Labeled tubulin polymerizes with an efficiency comparable to that of the unmodified protein (#). Shipped with dry ice.

Description	Cat.#	Qty
Tubulin (unlabeled)	FP-691542	1 mg
Tubulin - Fluorescein	FP-BN4531	5 x 20 $\mu$ g
Tubulin - Rhodamine	FP-966921	5 x 20 $\mu$ g

### Cell Matrix probes MMPs

See enzymes probes

### Fluorescent Chromosome Probes / Cytogenetics

FluoProbes® is pleased to provide several chromosomes probes, for cytogenetic studies as well as control and counter stains also used in other studies.

The **Whole Mouse and Human Chromosome paint Probes** are designed for in vitro research use of uniform labeling and identification of specific human chromosomes in metaphase using the Fluorescence In Situ Hybridization (FISH) technique. Probes can be visualized after 2 hours incubation. Probes are available in 10 tests size with Biotin and FITC labels. FITC chromosome probes, DAPI counterstaining. See also our DNA/RNA fluorescent dyes in section I.

The **Human Centromeric Probes** are designed for uniform labeling of specific human centromeres in metaphase and interphase cells using the FISH technique.

Chromosome(s) Label:	Human Chromosome PAINT Kit			Human Chromosome Centromeric PAINT			Mouse Chromosome PAINT Kit		
	Biotin	FITC	Tests	Biotin	FITC	Tests	Biotin	FITC	Tests
Chr. X	AR7630	AR9940	10	AS4880	AS4890	10	AR7840	AS0150	10
Chr. Y	AR7640	AR9950	10	AS4900	AS4910	10	AR7850	AS0160	10
Chr. (1-22,X,Y)	AT7360	AT7480	3						
Chr. 1	AR7410	AR9720	10	AS4520	AS4530	10	AR7650	AR9960	10
				(C. Chr.1/5/19)					
Chr. 2	AR7420	AR9730	10	AS4540	AS4550	10	AR7660	AR9970	10
Chr. 3	AR7430	AR9740	10	AS4560	AS4570	10	AR7670	AR9980	10
Chr. 4	AR7440	AY8120	10	AS4580	AS4590	10	AR7680	AR9990	10
Chr. 5	AR7450	AR9760	10	AS4520	AS4530	10	AR7690	AS0000	10
				(C. Chr.1/5/19)					
Chr. 6	AR7460	AR9770	10	AS4600	AS4610	10	AR7700	AS0010	10
Chr. 7	AR7470	AR9780	10	AS4620	AS4630	10	AR7710	AS0020	10
Chr. 8	AR7480	AR9790	10	AS4640	AS4650	10	AR7720	AS0030	10
Chr. 9	AR7490	AR9800	10	AS4660	AS4670	10	AR7730	AS0040	10
Chr. 10	AR7500	AR9810	10	AS4680	AS4690	10	AR7740	AS0050	10
Chr. 11	AR7510	AR9820	10	AS4700	AS4710	10	AR7750	AS0060	10
Chr. 12	AR7520	AR9830	10	AS4720	AS4730	10	AR7760	AS0070	10
Chr. 13	AR7530	AR9840	10	AS4740	AS4750	10	AR7770	AS0080	10
				(C. Chr. 13/21)					
Chr. 14	AR7540	AR9850	10	AS4760	AS4770	10	AR7780	AS0090	10
				(C. Chr.14/22)					
Chr. 15	AR7550	AR9860	10	AS4780	AS4790	10	AR7790	AS0100	10
Chr. 16	AR7560	AR9870	10	AS4800	AS4810	10	AR7800	AS0110	10
Chr. 17	AR7570	AR9880	10	AS4820	AS4830	10	AR7810	AS0120	10
Chr. 18	AR7580	AR9890	10	AS4840	AS4850	10	AR7820	AS0130	10
Chr. 19	AR7590	AR9900	10	AS4520	AS4530	10	AR7830	AS0140	10
				(C. Chr.1/5/19)					
Chr. 20	AR7600	AR9910	10	AS4860	AS4870	10			
Chr. 21	AR7610	AR9920	10	AS4740	AS4750	10			
				(C. Chr.13/21)					
Chr. 22	AR7620	AR9930	10	AS4760	AS4770	10			
				(C. Chr.14/22)					
Pan-Probe				AQ5890	AQ0460	10	AQ2630	AQ9880	10
Pan-Probe Telomer				AQ5900	AQ0470				
				(Telomere)	(Telomere)				

C. Chr.: Centromere of Chromosome

All our chromosome probes do not need any visualization reporter system in order to be detected, excepted for Biotin (see Avidins page A350). However, the fluorescence signal from the FITC labeled probes can be further enhanced by the use of FITC Antibody Enhancement Kit.