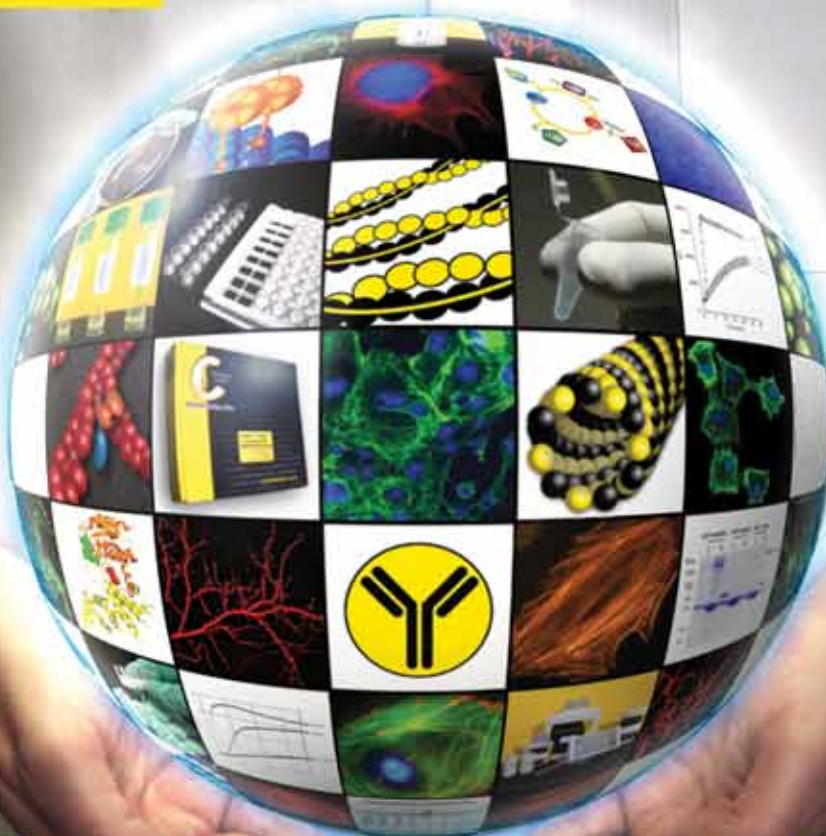




Cytoskeleton, Inc.

Minicatalog 2014

New Custom Services Inside!



Actin Proteins	•	Activation Assays	•	Antibodies
ELISA Assays	•	G-LISA® Kits	•	Pull-down Assays
Motor Proteins	•	Tubulin Proteins	•	Small G-proteins

*Helping advance science
one protein at a time.*

Custom Services - 3,15

Compound screening, protein purification, assay development, antibody, and ELISA services.



Small G-Protein Tools - 4,5

Small G-proteins, inhibitors, activators, antibodies, activation assays, Biochem Kits™, and more.



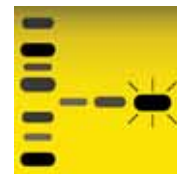
G-LISA® Kits - 6

A fast and sensitive solution for measuring the GTP-bound form of protein from a cell or tissue extract.



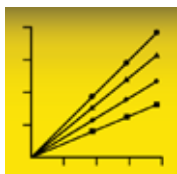
Pull-down Assays - 7

Traditional measurement method of GTP-bound form of protein from a cell or tissue extract.



Protein Assays - 8

Assays to measure purified and total cell protein.



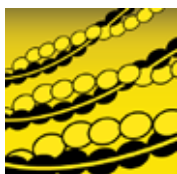
Acti-stain™ Phalloidins - 9

Exceptionally bright and stable fluorescent phalloidins offered at an economical price.



Actin Products - 9,10,11

Pure and biologically active proteins, actin binding proteins, antibodies, buffers, and research Biochem Kits™.



ECM Proteins - 11

Pure and labeled fibronectin and laminin proteins.



Tubulin Products - 12,13

Pure and biologically active proteins, antibodies, FtsZ proteins, pre-formed microtubules, Biochem Kits™, and more.



Motor Werks™ - 14

Pure and active kinesin and myosin family proteins, Biochem Kits™, antibodies, and more.



Visit Cytoskeleton.com for:

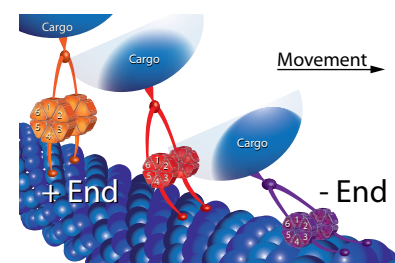
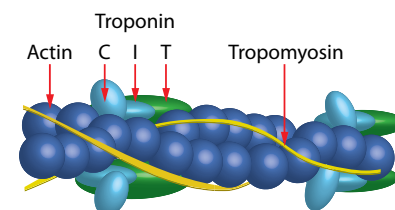
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- Our recently expanded Custom Services department provides additional resources for your research projects.
- Clearly defined modules allow you to rapidly choose the ideal assay or protein purification technique.
- Dedicated scientists provide timely updates and detailed reporting.

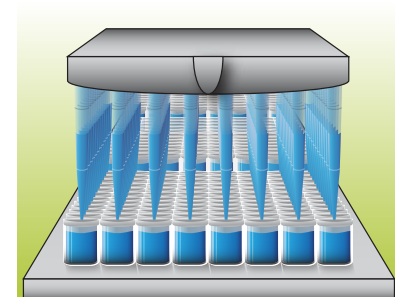
New proteins made to order

Protein name and disease relevance	Source	Application	Amount	Module #
Dynein (cytoplasmic) Neurodegeneration, vesicle, and organelle transport	Porcine brain	Microtubule stimulated ATPase assay	1 x 50 µg 1 x 1 mg	CS-DN01
MKLP2 motor domain Cancer biology	Human recombinant	Microtubule stimulated ATPase assay	1 x 25 µg 2 x 25 µg 4 x 25 µg	CS-MP05
KIF7 motor domain Developmental disorders and cancer biology	Human recombinant	Microtubule stimulated ATPase assay	2 x 50 µg 8 x 50 µg	CS-KF51
Myosin S1 fragment (cardiac) Heart failure	Bovine cardiac	Actin or thin filament stimulated ATPase assay	1 x 250 µg 1 x 1 mg	CS-MYS03
Myosin S1 fragment (skeletal)	Rabbit skeletal	F-actin stimulated ATPase assay	1 x 250 µg 1 x 1 mg	CS-MYS04
Myosin S1 fragment (smooth)	Chicken gizzard	F-actin stimulated ATPase assay	1 x 250 µg 1 x 1 mg	CS-MYS05
Myosin S1 fragment (non-muscle)	Bovine spleen	F-actin stimulated ATPase assay	1 x 250 µg 1 x 1 mg	CS-MYS06
Actin Thin Filaments Pre-assembled complex of Tropomyosin α/β , Troponins C,I,T and F-actin	Bovine cardiac	Calcium sensitive F-actin stimulated myosin ATPase assay	1 x 1 mg	CS-TFC01
Tropomyosin / Tropomodulin complex Complex of Tropomyosin α/β , Troponins C,I,T	Bovine cardiac	Actin thin filament preparation	1 x 1 mg 5 x 1 mg	CS-TT05
SOS1 K-Ras GEF protein Cancer biology	Human recombinant	GTP exchange assay	1 x 100 µg	CS-SOS1
Caki-1 tumor tubulin Cancer biology	Caki-1 tumor	Tubulin ligand binding or polymerization assay	1 x 250 µg	CS-TM001
Sheep brain tubulin	Sheep brain	Tubulin ligand binding or polymerization assay	1 x 10 mg	CS-T2345



New compound screening modules

Protein name and disease relevance	Protein targets	Format	Module #
Dynein or kinesin microtubule-stimulated ATPase assays Neurodegeneration, vesicle, and organelle transport	11 kinesins and cytoplasmic dynein complex	96 and 384 well colorimetric and fluorescence	CDS050-53
Myosin ATPase stimulated by F-actin or thin filaments Heart failure	Cardiac, skeletal, smooth muscle, and non-muscle myosins	96 and 384 well colorimetric and fluorescence	CDS054-057
Small GTPase exchange assay Cancer biology	Dbs, Tiam, SOS1, and other GEF exchange domains	96 or 384 well fluorescence	CDS100
Specialized tubulin polymerization assay Cancer biology, fungicide, and herbicide development	Tubulin isolated from human tumor, cell culture, plant, and fungal sources	384 well fluorescence	CDS015 to CDS020



Comprehensive Reports and Quick Turnaround

All custom projects are accompanied by a full report or datasheet. Usual turn around times are 2-3 weeks for screening projects and 4-8 weeks for protein production. For more information, see p.14 and 15, contact tservice@cytoskeleton.com or visit www.cytoskeleton.com/custom-services.



Small G-protein Tools

- Rapid-acting, cell permeable Rho family inhibitors and activators
- Highly-specific antibodies to small GTPases
- GTPase affinity beads and proteins

GTPase Affinity Beads and Proteins



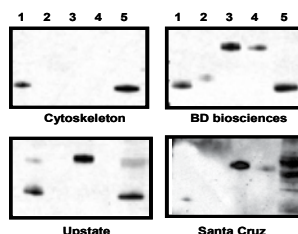
Specifically target the active form of different small G-proteins with these GTPase affinity beads and proteins.

- RhoA, RhoB, or RhoC Activation Assays (Cat. # RT02)
- Rac1, Rac2, or Rac3 Activation Assays (Cat. # PAK02)
- Cdc42 Activation Assays (Cat. # PAK02)

Brightly colored beads make our activation assays simple to track.

GTPase Affinity Beads and Proteins	Purity	Cat. #	Amount
GGA3-PBD Beads Binds active (GTP-bound) Arf1 and Arf6	>85%	GGA05-A	1 x 500 µg
PAK-PBD Protein Binds active (GTP-bound) Cdc42 and Rac	>80%	PAK01-A PAK01-B	1 x 250 µg 4 x 250 µg
PAK-PBD Beads Binds active (GTP-bound) Cdc42 and Rac	>80%	PAK02-A PAK02-B	1 x 500 µg 4 x 500 µg
Raf-RBD Beads Binds active (GTP-bound) Ras	>80%	RF02-A RF02-B	1 x 2 mg 4 x 2 mg
Rhotekin-RBD Protein Binds active (GTP-bound) Rho	>90%	RT01-A	1 x 500 µg
Rhotekin-RBD Beads Binds active (GTP-bound) Rho	>85%	RT02-A RT02-B	2 x 2 mg 6 x 2 mg

QC Max™ Antibodies for Small G-proteins



Specificity and sensitivity of Anti-Rac1 monoclonal antibody (Cat. # ARC03). ARC03 does not cross-react with Rac2, 3, or Cdc42 (upper left blot), while all other commercially available Rac1 antibodies cross-react with GTPases other than Rac1.

Small G-protein Antibodies	Host	Type	Species Reactivity	Cat. #	Amount
Cdc42 Specific Antibody Human Cdc42 Peptide (a.a.123-141)	Mouse	mAb	Hu, Ms, Rt, other extracts	ACD03-A ACD03-B	1 x 100 µg 3 x 100 µg
Rac1 Specific Antibody Human C-terminal Peptide	Mouse	mAb	Hu, Ms, Rt, other extracts	ARC03-A ARC03-B	2 x 50 µg 6 x 50 µg
RhoA Specific Antibody Human RhoA Peptide (a.a. 120-150)	Mouse	mAb	Hu, Ms, Rt, other extracts	ARH03-A ARH03-B	2 x 50 µg 6 x 50 µg

G-switch™ Activators and Inhibitors

The most defined way of controlling endogenous Rho protein activity

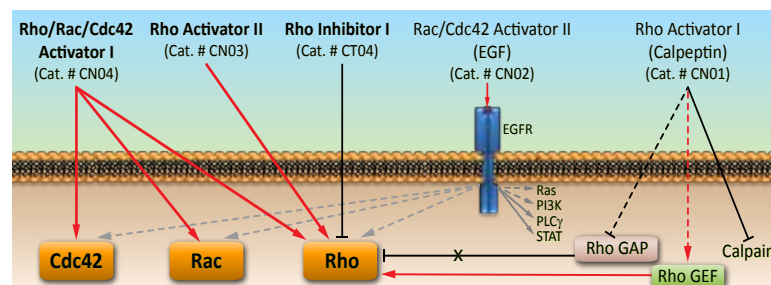


About G-switch™ Products

The G-switch™ line of small G-protein tools has been developed with an emphasis on creating highly potent reagents that target endogenous Rho family proteins and pathways. In contrast to methods that rely on over-expression or knockdown of target proteins (e.g., DNA transfection of dominant-negative or constitutively-active Rho mutants, RNAi knockdown), G-switch™ reagents act rapidly on the endogenous target protein (in minutes to hours), thereby optimizing the chance of generating a more physiologically relevant response.

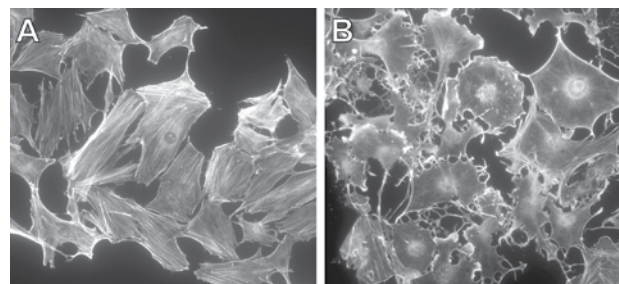
For more information visit www.cytoskeleton.com/g-switch

Rho Activator and Inhibitor Pathways



G-protein Modulator	Cell Entry Mechanism	Protein Modulation	Cat. #	Amount
Rho Activator II Deamidation of Rho Gln-63	Cell permeable	Direct	CN03-A CN03-B	3 x 20 µg 9 x 20 µg
Rho Inhibitor I ADP ribosylation of Rho Asn-41	Cell permeable	Direct	CT04-A CT04-B CT04-C	1 x 20 µg 5 x 20 µg 20 x 20 µg
Rho/Rac/Cdc42 Activator I Deamidation of Rho Gln-63 & Rac/Cdc42 Gln-61	Cell permeable	Direct	CN04-A CN04-B	3 x 20 µg 9 x 20 µg
Rho Pathway Inhibitor I Rho kinase (ROCK) inhibitor Y-27632	Cell permeable	Direct	CN06-A CN06-B	5 x 10 units 20 x 10 units
Rho Activator I SHP-2 phosphatase-mediated Rho activation	Cell permeable	Indirect	CN01-A CN01-B	5 x 10 units 20 x 10 units
Rac/Cdc42 Activator II EGF receptor-mediated Rac/Cdc42 activation	Receptor mediated	Indirect	CN02-A CN02-B	5 x 10 units 20 x 10 units

Example Results



Serum-starved 3T3 cells treated for 2 h with media containing PBS (A) or 2 µg/ml CT04 in PBS (B). Cell morphology examined with rhodamine-phalloidin (Cat. # PHDR1, See p. 9) labeling of F-actin. Note abundant stress fibers in cells of panel (A), whereas in panel (B), cells are mainly devoid of stress fibers.



- Purified and tagged wild-type, dominant-negative, and constitutively-active small GTPases
- High quality Rho family proteins and reagents
- Purified GEFs and GAPs



GEF Assay

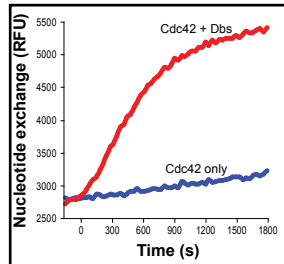
A fluorophore-based assay for measuring nucleotide exchange on GTPases in a 96-well or 384-well format. The kit measures the binding of a fluorescent nucleotide analog with GTPases.

Kit Includes

- All required reagents and buffers
- Cdc42, Rac1, and RhoA GTPase proteins
- GEF domain of Dbs (Positive control GEF)
- Useful with all other small G-proteins

Uses of the GEF assay kit include:

- Determine activity and specificity of uncharacterized GEFs
- Regulation of GEF activity by cofactors
- Discover small molecule GEF inhibitors



RhoGEF assay using BK100. Cdc42 alone and Cdc42 + Dbs was incubated according to the BK100 protocol and nucleotide exchange was measured.

Product	Cat. #	Amount
RhoGEF Exchange Assay Biochem Kit™	BK100	60-300 assays

G-proteins Modulators and Effectors

G-protein Modulator & Effector Proteins	Purity	Cat. #	Amount
Rho Inhibitor I Cell permeable C3 Transferase Protein	>90%	CT04-A CT04-B CT04-C	1 x 20 µg 5 x 20 µg 20 x 20 µg
C3 Transferase Protein Specific inhibitor of Rho activity	>90%	CT03-A CT03-C	1 x 25 µg 4 x 25 µg
Dbs His Protein, RhoGEF domain (DH/PH) GEF for Cdc42 and RhoA	>80%	GE01-A	2 x 50 µg
p50RhoGAP GST Protein, full length GAP for Cdc42, Rac, and Rho	>90%	GAP01-A GAP01-B	1 x 50 µg 4 x 50 µg
p50RhoGAP GST Protein, GAP domain GAP for Cdc42, Rac, and Rho	>90%	GA501-A GA501-B	1 x 50 µg 4 x 50 µg
RanBP1 His Protein Binds specifically to active (GTP-bound) Ran	>80%	RN07-A	1 x 250 µg
RhoGDI GST Protein Inhibitor of Cdc42, Rac, and Rho	>90%	GDI01-A	1 x 25 µg

Additional Signal Transduction Reagents

Signal Transduction Reagents	Cat. #	Amount
Total RhoA ELISA Measures total RhoA levels	BK150	96 assays
GTPγS Non-hydrolyzable GTP analog, 50 µl of 20 mM	BS01	1 x 500 µg
GTPase CytoPhos™ Assay One step assay for enzyme Kcat 0.01 to 100	BK054	1000 assays
Acti-stain™ 488 Phalloidin See page 9 for more information	PHDG1-A	300 slides*
Acti-stain™ 535 Phalloidin (rhodamine) Stabilizes and selectively labels actin filaments	PHDR1	300 slides*
Acti-stain™ 555 Phalloidin See page 9 for more information	PHDH1-A	300 slides*
Acti-stain™ 670 Phalloidin See page 9 for more information	PHDN1-A	300 slides*

* One slide equals enough phalloidin to stain a 25 mm² coverslip



GAP Assay

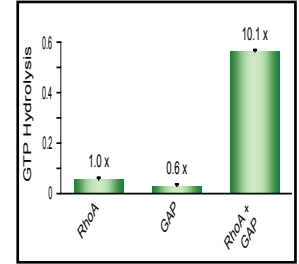
Measures the amount of inorganic phosphate (Pi) produced as a result of G-protein-dependent hydrolysis of GTP to GDP + Pi in a 96-well or 384-well format.

Kit Includes

- All required reagents and buffers
- Cdc42, Rac1, RhoA, & H-Ras GTPase proteins
- RhoGAP (Positive control)
- Phosphate detection reagents

Uses of the GAP assay kit include:

- Determine activity and specificity of uncharacterized GAPs
- Regulation of GAP activity by cofactors
- Discover small molecule GAP inhibitors



GAP assay using BK105. RhoA alone (RhoA), p50RhoGAP alone (GAP), or RhoA and p50RhoGAP (RhoA+GAP) were incubated and the GTP hydrolysis was measured.

Product	Cat. #	Amount
RhoGAP Assay Biochem Kit™	BK105	80-160 assays

Purified G-proteins

Purified G-proteins	Purity	Cat. #	Amount
Cdc42 His Protein, constitutively-active (Q61L)	>70%	C6101-A	1 x 10 µg
Cdc42 GST Protein, dominant-negative (T17N)	>90%	C17G01-A	1 x 25 µg
Cdc42 GST Protein, wild-type	>90%	CDG01-C	8 x 25 µg
Cdc42 His Protein, wild-type	>90%	CD01-A CD01-C CD01-XL	1 x 100 µg 3 x 100 µg 1 x 1 mg
Rac1 His Protein, constitutively-active (Q61L)	>90%	R6101-A	1 x 10 µg
Rac1 GST Protein, dominant-negative (T17N)	>90%	R17G01-A	1 x 25 µg
Rac1 GST Protein, wild-type	>90%	RCG01-C	8 x 25 µg
Rac1 His Protein, wild-type	>90%	RC01-A RC01-C RC01-XL	1 x 100 µg 3 x 100 µg 1 x 1 mg
Rac2 His Protein, wild-type	>90%	RC02-A	1 x 100 µg
Ran His Protein, constitutively-active (Q69L)	>90%	RN03-A	1 x 10 µg
Ran His Protein, dominant-negative (T24N)	>90%	RN05-A	1 x 10 µg
Ran His Protein, wild-type	>90%	RN01-A	1 x 10 µg
Rap1b His Protein, wild-type	>90%	RR02-A	1 x 100 µg
H-Ras His Protein, wild-type	>80%	RS01-A RS01-C	1 x 100 µg 3 x 100 µg
RhoA His Protein, constitutively-active (Q63L)	>90%	R6301-A	1 x 10 µg
RhoA GST Protein, wild-type	>90%	RHG01-C	8 x 25 µg
RhoA His Protein, wild-type	>80%	RH01-A RH01-C RH01-XL	1 x 100 µg 3 x 100 µg 1 x 1 mg
RhoC His Protein, wild-type	>90%	RH03-A	1 x 100 µg



G-LISA® Activation Assays

G-LISA® - A Fast, Accurate, and Economical Way of Performing Small G-protein Activation Assays.
The Established Standard in the Field.

The G-LISA® Advantage

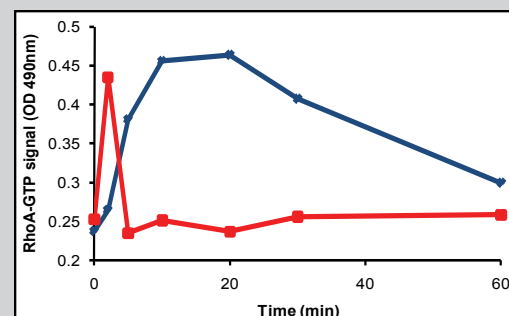
Measuring the activation (i.e., the level of GTP-loading) of small GTPases in cells or tissues has become a widely used technique for signal transduction research.

Traditionally, this has been done by pull-down methods which are time consuming and require large amounts of cell material. This limits the number of samples that can be handled simultaneously and yields only semi-quantitative results. Additionally, it limits the usability of pull-down assays with certain cell types, including primary cells. To address this shortcoming, Cytoskeleton has developed the G-LISA® assay (Patent# 7,763,418 B2). With the G-LISA® kits for Ras superfamily proteins, you can now measure Arf1, Arf6, Cdc42, Rac1, Rac1,2,3, RalA, Ras, and RhoA activity from cell and tissue samples in less than 3 hours. The kits are available

in either colorimetric or luminescence detection formats (see product list below). G-LISAs require only 2.5% (10 to 50 µg) of the cell material needed for a conventional pull-down assay (500 to 2000 µg), and the assay is so simple that it allows you to handle much larger sample numbers than you previously could. As opposed to pull-down assays, where the output is a Western blot, G-LISAs give you numerical data which are easily compared between samples.

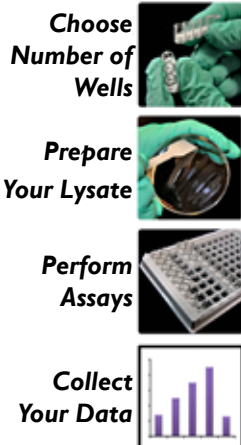
"Know Your Rho"

The most accurate method of determining activated RhoA and Total RhoA is by using the RhoA G-LISA® (Activated) in conjunction with the Total RhoA ELISA (See Cat. # BK150).



Time course of activation of RhoA in Swiss 3T3 cells by CN01 and LPA. Serum-starved Swiss 3T3 cells were treated with Rho Activator I, Cat. # CN01 (blue diamonds) or LPA (magenta squares). RhoA activity was measured by reading signals at OD_{490nm}. Data are background subtracted.

Quick and Easy Method



G-LISA® Activation Assays

G-LISA® Activation Assays	Format	Cat. #	Amount
Arf1 Activation Assay G-LISA® Kit	Colorimetric	BK132	96 assays
Arf6 Activation Assay G-LISA® Kit	Colorimetric	BK133	96 assays
RhoA Activation Assay G-LISA® Kit	Colorimetric	BK124	96 assays
RhoA Activation Assay G-LISA® Kit	Luminescence	BK121	96 assays
Rac1,2,3 Activation Assay G-LISA® Kit	Colorimetric	BK125	96 assays
Rac1 Activation Assay G-LISA® Kit	Colorimetric	BK128	96 assays
Rac1 Activation Assay G-LISA® Kit	Luminescence	BK126	96 assays
Cdc42 Activation Assay G-LISA® Kit	Colorimetric	BK127	96 assays
RalA Activation Assay G-LISA® Kit	Colorimetric	BK129	96 assays
Ras Activation Assay G-LISA® Kit	Colorimetric	BK131	96 assays

Example Citations

RhoA G-LISA® (colorimetric, Cat. # BK124)

J. Alder et al., 2013. *Develop. Neurobiol.* **73**, 769–784.
F. Mizoguchi et al., 2013. *Arthritis Res. Ther.* **15**, R102.

Rac1,2,3 G-LISA® (colorimetric, Cat. # BK125)

A.S. Ribeiro et al., 2013. *J. Pathol.* **229**, 705–718.
M. Kalia et al., 2013. *J. Virol.* **87**, 148–162.

Rac1 G-LISA® (colorimetric, Cat. # BK128)

J. Yang et al., 2013. *Cardiovasc. Res.* **97**, 490–499.
T. Buranda et al., 2013. *Anal. Biochem.* **442**, 149–157.

Cdc42 G-LISA® (colorimetric, Cat. # BK127)

N. Valtcheva et al., 2013. *J. Biol. Chem.* doi: 10.1074/jbc.M113.512954.
K. Bray et al., 2013. *Breast Cancer Res.* **15**, R91.

Ras G-LISA® (colorimetric, Cat. # BK131)

L.D. Camargo et al., 2013. *Free Radic. Biol. Med.* **65**, 1398–1407.
S.-J. Lee et al., 2013. *J. Biol. Chem.* **288**, 25244–25253.

G-LISA® vs. Traditional Pull-down

	G-LISA®	Traditional pull-down
Cell material per assay	10-50 µg protein (3 cm plate)	500-2000 µg protein (10 cm plate)
Assay time	<3 h	10-12 h (2 days)
Lysate clarification needed*	No	Yes
Sample handling	Up to 96 samples (or more)	Up to 10 samples
Quantitative data**	Yes	Semi

* Clarification is still recommended for low sample numbers.

** Numerical readouts and fewer sample handling steps make this assay more quantitative.

Pull-down Activation Assays



To complement our G-LISA® line of activation assays, we offer the most efficiently designed traditional pull-down activation assays available

Pull-down Activation Assays

Pull-down assays use a domain of a G-protein effector coupled to glutathione beads. These affinity beads only bind the active, GTP-bound form of the target G-protein, thereby isolating the active pool of the target G-protein from a cell/tissue lysate. The precipitated material is run on a SDS-PAGE gel followed by a Western blot for the G-protein to measure the amount of active G-protein.

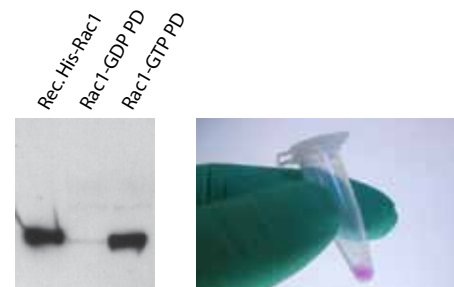
In addition, we provide affinity beads alone for greater flexibility in experimental design: PAK-PBD for Rac and Cdc42 (Cat. # PAK02) and Rhotekin-RBD for Rho (Cat. # RT02). An image of the beads is shown to the right and you will notice the colored beads which allow easy identification of the pellet during the centrifuge based washing procedure.

Kit Contents

Cytoskeleton's kits have many more reagents than other suppliers, allowing you non-stop experimental operation at every point in the procedure. All required reagents and buffers including positive and negative controls are included in each kit.

Starter and Combo Kits

Looking to get started with activation assays, but not ready for a large kit? Our starter and combo pull-down activation assays provide a low cost solution for your lab. Larger formats (50-80 assays) are also available and provide the best value per pull-down assay on the market.



Activated Rac was precipitated and detected in a Western blot using kit BK035. The first lane shows a 50 ng recombinant His-tagged Rac standard (Rec. His-Rac1). The following lanes show the pull-down of inactive GDP-loaded Rac1 (Rac1-GDP PD), or active GTP-loaded Rac1 (Rac1-GTP PD) from equal amounts of cell lysates.

Pull-down Activation Assays

Pull-down Activation Assays	Effector Protein	Cat. #	Amount
Combo! RhoA/Rac1/Cdc42 Activation Assay Combo Biochem Kit™	See below	BK030	3 x 10 assays
Arf1 Activation Assay Biochem Kit™	GGA3 (1-316) PBD	BK032-S	20 assays
Arf6 Activation Assay Biochem Kit™	GGA3 (1-316) PBD	BK033-S	20 assays
Cdc42 Activation Assay Biochem Kit™	p21 activated kinase 1	BK034-S BK034	20 assays 50 assays
Rac1 Activation Assay Biochem Kit™	p21 activated kinase 1	BK035-S BK035	20 assays 50 assays
Ras Activation Assay Biochem Kit™	Kinase Raf1	BK008-S BK008	20 assays 50 assays
RalA Activation Assay Biochem Kit™	Ral-BP1	BK040	50 assays
RhoA Activation Assay Biochem Kit™	Rhotekin	BK036-S BK036	20 assays 80 assays

Pull-down Benefits

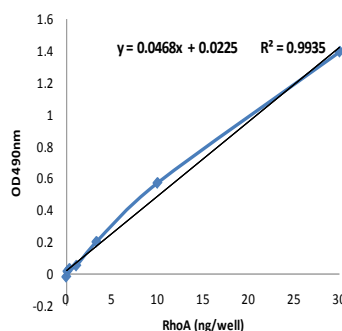
- **Best price per pull-down assay**
- **Lowest entry price (Starter & Combo)**
- **20 years of proven results**
- **Dedicated technical support**
- **User friendly protocols**
- **100s of citations available**

Total RhoA ELISA

Rapidly measure Total RhoA from cell or tissue lysates using the extremely sensitive and linear Total RhoA ELISA.

The most accurate method of determining activated RhoA and Total RhoA is by using the RhoA G-LISA® (Activated) in conjunction with the Total RhoA ELISA (See Cat. # BK150).

Total RhoA ELISA	Cat. #	Amount
Total RhoA ELISA Measures total RhoA levels	BK150	96 assays



Sensitive and Linear Total RhoA ELISA. The Total RhoA ELISA was evaluated for linearity and sensitivity using purified recombinant human RhoA (Cat# RH01). The assay is highly linear from 1 ng to 30 ng/well RhoA.

Protease Inhibitor Cocktail

- Inhibits a wide range of proteases
- Popular activation assay component
- Supplied as lyophilized powder
- EDTA free

Product	Cat. #	Amount
Protease Inhibitor Cocktail	PIC02	1 x 1 ml

Know Your Rho Package!

Purchase RhoA G-LISA (Cat. # BK124) & Total RhoA ELISA (Cat. # BK150) for the most accurate method of measuring Activated and Total RhoA.



Protein Assays

Developed by scientists at Cytoskeleton for improved standardization and comparable readings between different proteins.

Precision Red Protein Assay™

The Precision Red Advanced Protein Assay Reagent is designed to optimize the speed and accuracy of protein measurements. The reagent provides low protein to protein variance and works across a wide range of protein concentration for a robust assay. The assay can measure accurately protein concentrations ranging from 0.25 to 50 mg/ml and is detergent compatible. A simple one step procedure results in a red to blue color change within 1 min, which can be recognized by measuring absorbance at 600 nm.

Measures Protein Concentration in:

- Cell Extracts in Detergent Buffers
- Purified Proteins and Antibodies
- High Protein Concentration Solutions
- Proteins Requiring GLP Standards
- Serum Samples

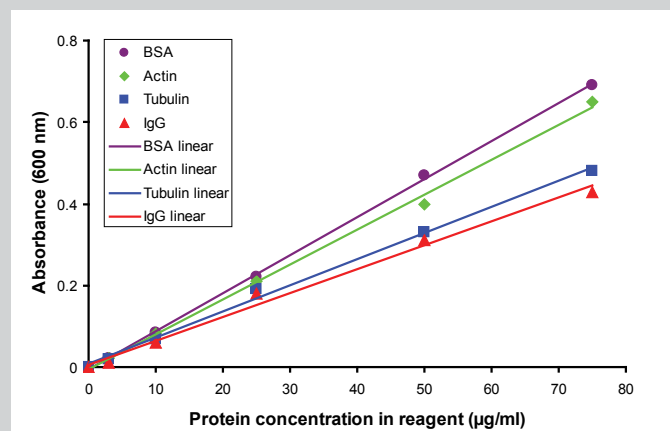
Detergent Compatibility

- Triton X-100
- NP40 or Igepal
- Tween 20
- SDS

Description	Cat. #	Amount
Precision Red™ Advanced Protein Assay (1X stock reagent)	ADV02-A	1 x 500 ml
Quantitates protein in the 0.25-50 mg/ml range	ADV02-B	3 x 500 ml



Linearity of Precision Red™



Comparison of different proteins measured over a wide range of concentrations. 10 µl of sample plus 1 ml of reagent were pipetted into a 1.0 ml cuvette and incubated for 1 min. Samples were read in a spectrophotometer set at 600 nm. ADV02 gives a linear response from 0.25 mg/ml to 50 mg/ml in PBS or Tris buffer. Samples can also be measured in 96-well format using 5 or 10 µl of sample and 300 µl of reagent.

Advanced Protein Assay™

The Advanced Protein Assay Reagent is designed to optimize the speed and accuracy of protein measurements. The reagent combines the useful properties of low protein to protein variance and a strong signal for a sensitive assay. A simple one step procedure results in a green to blue color change which can be recognized by measuring absorbance at 570 to 615 nm within 1 min.

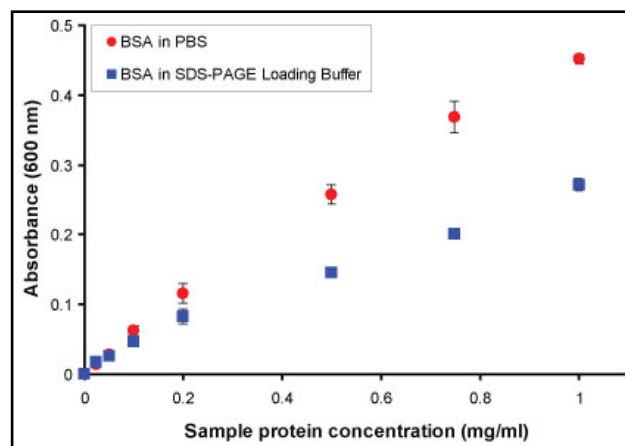
Measures Protein Concentration in:

- Low Protein Concentration Solutions
- Column Fractions
- Purified Proteins and Antibodies

Detergent Compatibility

- Triton X-100
- NP40 or Igepal
- Tween 20

Description	Cat. #	Amount
Advanced Protein Assay™ (5X stock reagent)	ADV01-A	1 x 500 ml
Quantitates proteins in the 0.025 - 1.0 mg/ml range	ADV01-B	3 x 500 ml



Comparison of protein measurements with ADV01 in PBS buffer and SDS-PAGE sample buffer. 2 µl of sample plus 300 µl of reagent were mixed in a well of a standard 96-well plate. Absorbance at 600 nm was read and plotted on the figure. ADV01 gives a linear response in both PBS and SDS-PAGE sample buffer.



Best value for exceptionally bright and photostable fluorescent F-actin stains.

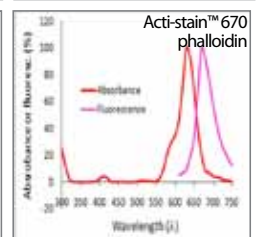
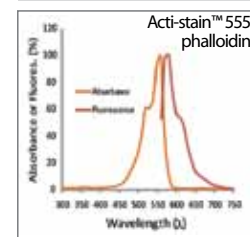
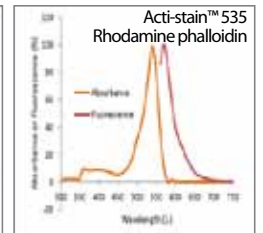
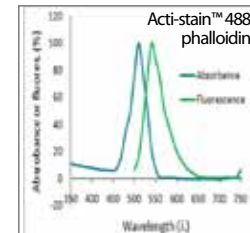
The Acti-stain™ Advantage

The Acti-stain™ line of fluorescent phalloidins has been developed with an emphasis on creating exceptionally bright and stable probes for F-actin at an economical price. Side-by-side comparisons with similar products insure considerable savings without sacrificing quality when switching to an Acti-stain™ probe. The combination of in-house manufacturing, stringent quality control and convenient packaging provides a great value. Give them a try and see for yourself.

For more information and comparison to other fluorescent phalloidins, visit:
cytoskeleton.com/actin/acti-stain



Swiss 3T3 cell stained with Acti-stain™ Fluorescent Phalloidins



Absorbance and fluorescence scan of Acti-stain™ Fluorescent Phalloidins

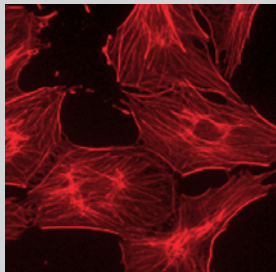
Product	Excitation	Emission	Signal stability* (T _{1/2} in secs)	Cat. #	Amount**
Acti-stain™ 488 phalloidin	480 nm	535 nm	57	PHDG1-A	300 Slides
Acti-stain™ 535 phalloidin (Rhodamine phalloidin)	535 nm	585 nm	27	PHDR1	300 Slides
Acti-stain™ 555 phalloidin	535 nm	585 nm	46	PHDH1-A	300 Slides
Acti-stain™ 670 phalloidin	640 nm	670 nm	8	PHDN1-A	300 Slides

* Stability measured without antifade. For comparison, fluorescein phalloidin has a T_{1/2} of 6 secs.

** One slide equals enough phalloidin to stain a 25 mm² coverslip

F-actin Visualization Biochem Kit™

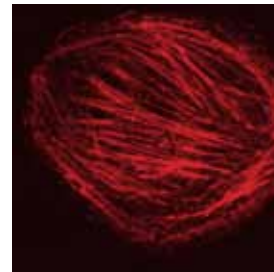
The kit allows researchers to fix and permeabilize tissue culture cells while preserving structure of the F-actin cytoskeleton. Subsequently, the F-actin cytoskeleton is stained with fluorescent (rhodamine) phalloidin (Cat. # PHDR1) that is also provided in the kit.



The F-actin cytoskeleton of Swiss 3T3 cells stained with the F-actin Visualization Biochem Kit™.

Live Cell Actin Staining Products

In living cells, actin structures can be observed by incorporating fluorescently labeled actin, expressing GFP-actin, or a fluorescently labeled actin binding protein sub-domain. Fluorescent actin is the most accurate reporter of actin structures.



Rhodamine-labeled actin microinjected into CHO cells. The labeled actin (Cat. # APHR) rapidly incorporates into the cellular actin cytoskeleton and allows real time observation of actin dynamics.

Product	Cat. #	Amount
F-actin Visualization Biochem Kit™	BK005	300 assays

Labeled Actins	Source	Purity	Cat. #	Amount
Rhodamine Actin Protein	Human platelet, non-muscle	>99%	APHR-A APHR-C	4 x 10 µg 20 x 10 µg
Rhodamine Actin Protein	Rabbit skeletal muscle	>99%	AR05-B AR05-C	10 x 20 µg 20 x 20 µg



Actin Biochem Kits™

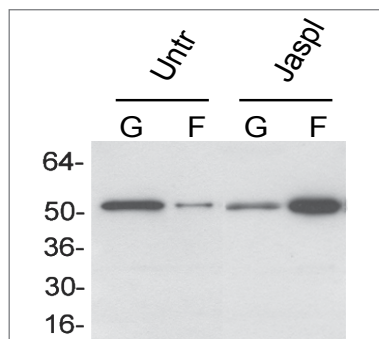
Actin Kits designed to simplify challenging experiments and produce publication-quality data.

G-actin/F-actin In Vivo Biochem Kit™

- Quantitates monomeric vs polymeric actin in cell/tissue lysates
- Reproducible and accurate method
- Contains all needed reagents

Simply lyse cells or tissue in the F-actin stabilizing buffer, preserving the G-actin:F-actin ratio. Samples are then centrifuged and the supernatants (G-actin) and pellets (F-actin) are solubilized in SDS loading buffer and run on a gel for Western blot analysis.

Reorganization of actin after treatment with jasplakinolide



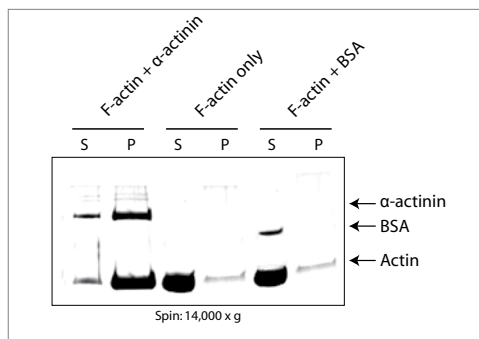
Swiss 3T3 cells were treated with jasplakinolide (Jaspl) or left untreated (Untr) and the G-actin (G) and F-actin (F) content was assayed using the G-actin/F-actin kit. Treatment with jasplakinolide resulted in a potent accumulation of F-actin.

Actin Binding Protein Spin-Down Assay Kit

- Identifies and characterizes Actin Binding Proteins (ABPs)
- Generation of saturation binding curves
- Muscle (BK001) or non-muscle (BK013) actin

This easy to use co-sedimentation assay allows the identification and characterization of proteins that bind to actin filaments. The kit will help you identify whether your ABP is a F-actin binding protein, a F-actin severing protein, has F-actin bundling activity, or is a G-actin binding protein.

Actin bundling assay using kit BK001



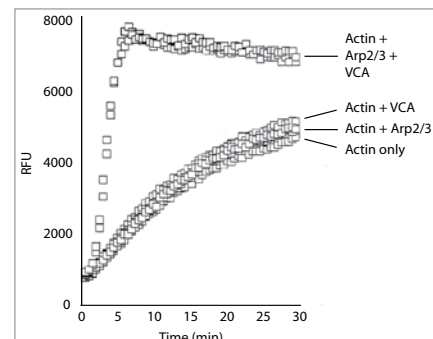
F-actin was incubated alone or together with α -actinin or BSA. Bundled F-actin was pelleted by a 14,000 x g centrifugation and pellets (P) and supernatants (S) were run on an SDS-PAGE gel. Only in the presence of the F-actin bundling protein α -actinin is actin pelleted at this centrifugation speed.

Actin Polymerization Biochem Kit™

- Utilizes fluorescent pyrene-actin
- F-actin polymerization and depolymerization
- Works with multiple sources of actin such as skeletal muscle, cardiac, and non-muscle actin
- Valuable for characterizing ABPs

This kit is based upon the enhanced fluorescence of pyrene-conjugated actin that occurs during polymerization. It is a versatile kit and can be used to study the effects on polymerization (or depolymerization) following the addition of a compound, tissue extract, or protein of interest.

Characterization of ABPs using Actin Polymerization Biochem Kit™



Effects of Arp2/3 (Cat. # RP01) and the WASP VCA (Cat. # VCG03) domain on actin polymerization *in vitro*.

Polymerization curves are often indicative of a given type of ABP. A nucleating protein will give a characteristically steep polymerization curve while a monomer binding protein will give a shallow curve. The figure above demonstrates that Arp2/3 or the WASP VCA domain alone has little effect on the rate of actin polymerization, while the combination of the two leads to an activation of the actin nucleating Arp2/3 complex and a subsequent increased rate of actin polymerization.

Product	Cat. #	Amount
G-actin/F-actin In Vivo Biochem Kit™	BK037	30-100 assays

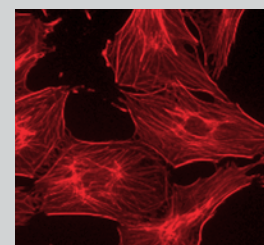
Product	Cat. #	Amount
Actin Binding Protein Spin-Down Assay Biochem Kit™ Muscle	BK001	30-100 assays
Actin Binding Protein Spin-Down Assay Biochem Kit™ Non-muscle	BK013	30-100 assays

Product	Cat. #	Amount
Actin Polymerization Biochem Kit™	BK003	30-100 assays

F-actin Visualization Biochem Kit™

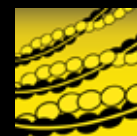
The kit allows researchers to fix and permeabilize tissue culture cells while preserving structure of the F-actin cytoskeleton. Subsequently, the F-actin cytoskeleton is stained with fluorescent (rhodamine) phalloidin (Cat. # PHDR1, see p. 9) that is also provided in the kit.

Product	Cat. #	Amount
F-actin Visualization Biochem Kit™	BK005	300 assays



The F-actin cytoskeleton of Swiss 3T3 cells stained with the F-actin Visualization Biochem Kit™.

Actin & Fluorescent ECM Proteins



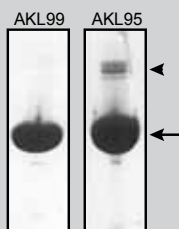
Unmatched activity and purity in the most comprehensive actin portfolio

Purity

Cytoskeleton offers the highest purity actin available. Purities are **greater than 99%** from most sources.

Purities of rabbit skeletal muscle actin protein.

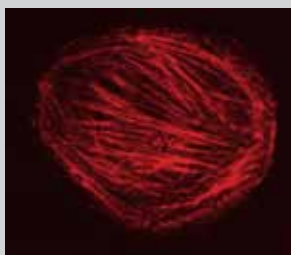
100 µg of >99% pure (AKL99) and >95% pure (AKL95) rabbit skeletal muscle actin were run on SDS-PAGE gels and stained with Coomassie Blue. In polymerization tests, AKL99 produces >90% F-actin and AKL95 produces >80% F-actin. The arrow indicates actin protein, the arrowhead an α -actinin contaminant (115 kDa). The minor impurities in the purified actins are predominantly actin binding proteins such as α -actinin and gelsolin.



Labeled Actins

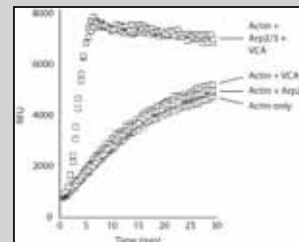
Highly pure and biologically active actins labeled with:

Rhodamine
Pyrene
Biotin



Rhodamine-labeled actin has been microinjected into CHO cells. The labeled actin (Cat. # APHR) rapidly incorporates into the cellular actin cytoskeleton and allows real time observation of actin dynamics.

Biologically Active



Actin polymerization stimulated by Arp2/3 complex and the VCA domain of WASP. Actin polymerization was measured using kit BK003. The addition of Arp2/3 complex (Cat. # RP01) or the VCA domain (Cat. # VCG03) alone to actin has minimal effects on actin polymerization, while the combination of Arp2/3 and the VCA domain strongly stimulates the rate of actin polymerization.

Unlabeled Actins	Source	Purity	Cat. #	Amount
Actin Protein	Rabbit skeletal muscle	>99%	AKL99-A	4 x 250 µg
			AKL99-B	2 x 1 mg
			AKL99-C	5 x 1 mg
			AKL99-D	10 x 1 mg
			AKL99-E	20 x 1 mg
Actin Protein	Rabbit skeletal muscle	>95%	AKL95-B	1 x 1 mg
			AKL95-C	5 x 1 mg
Actin Protein	Bovine cardiac muscle	>99%	AD99-A	1 x 1 mg
			AD99-B	5 x 1 mg
Actin Protein	Smooth muscle, chicken gizzard	>99%	AS99-A	1 x 1 mg
			AS99-B	5 x 1 mg
Actin Protein	Human platelet, non-muscle	>99%	APHL99-A	2 x 250 µg
			APHL99-C	1 x 1 mg
			APHL99-E	5 x 1 mg
Pre-formed Actin Filaments	Rabbit skeletal muscle	>99%	AKF99-A	1 x 1 mg
			AKF99-B	5 x 1 mg

Labeled Actins	Source	Purity	Cat. #	Amount
Biotinylated Actin Protein	Rabbit skeletal muscle	>99%	AB07-A	5 x 20 µg
			AB07-C	20 x 20 µg
Pyrene Actin Protein	Rabbit skeletal muscle	>99%	AP05-A	1 x 1 mg
			AP05-B	5 x 1 mg
Rhodamine Actin Protein	Human platelet, non-muscle	>99%	APHR-A	4 x 10 µg
			APHR-C	20 x 10 µg
Rhodamine Actin Protein	Rabbit skeletal muscle	>99%	AR05-B	10 x 20 µg
			AR05-C	20 x 20 µg

Antibodies	Antigen	Host	Grade	Cat. #	Amount
Actin Antibody	C-terminal of actin	Rabbit	Affinity Purified	AAN01-A	1 x 100 µg
				AAN01-B	3 x 100 µg
Cofilin Antibody	N-terminal of human cofilin1	Rabbit	Affinity Purified	ACFL02-A	1 x 50 µg
				ACFL02-B	3 x 50 µg
Profilin Antibody	Purified human profilin	Rabbit	Affinity Purified	APUF01-A	1 x 50 µg

Actin Buffers	Cat. #	Amount
General Actin Buffer (10 ml or 100 ml when resuspended) For resuspending & diluting G-actin protein	BSA01-001	1 x 100 ml
	BSA01-010	1 x 100 ml
Actin Polymerization Buffer (10X stock when resuspended) For the polymerization of actin	BSA02-001	1 x 2 ml
ATP (100 mM stock solution when resuspended) ATP is required for actin stability and polymerization	BSA04-001	1 x 1 ml

Actin Binding Proteins	Source	Purity	Cat. #	Amount
α-Actinin Protein	Rabbit skeletal muscle	>90%	AT01-A	2 x 50 µg
			AT01-C	10 x 50 µg
Arp2/3 Protein Complex	Bovine brain	>90%	RP01-A	2 x 50 µg
			RP01P-A	2 x 50 µg
Arp2/3 Protein Complex	Porcine brain	>90%	RP01P-B	6 x 50 µg
			CF01-A	1 x 100 µg
Cofilin Protein	Recombinant human cofilin 1	95%	CF01-C	4 x 100 µg
			HPG6-A	4 x 20 µg
Gelsolin Protein	Recombinant human, plasma isoform	>95%	HPG6-B	20 x 20 µg
			MY03-A	5 x 1 mg
Myosin Cardiac Protein	Bovine cardiac muscle	95%	MY03-B	10 x 1 mg
			CHYMOTRYPSIN DIGEST OF RABBIT SKELETAL MUSCLE MYOSIN II	
Myosin: Heavy Meromyosin Protein	Rabbit skeletal muscle	70%	MH01-A	4 x 50 µg
			MY02-A	5 x 1 mg
Myosin II Protein	Rabbit skeletal muscle	95%	MY02-B	20 x 1 mg
			PR01-A	1 x 50 µg
Profilin Protein	Recombinant human profilin 1	>95%	PR01-A	1 x 50 µg
			WASP protein VCA Domain: GST tagged	
WASP protein VCA Domain: GST tagged Binds & activates Arp2/3	Recombinant human	>95%	VCG03-A	1 x 500 µg

Fluorescent ECMs	Source	Purity	Cat. #	Amount
Fibronectin Red fluorescent, rhodamine	Bovine serum	>80%	FNR01-A	5 x 20 µg
			FNR01-B	20 x 20 µg
Fibronectin Green fluorescent, HiLyte Fluor™ 488	Bovine serum	>80%	FNR02-A	5 x 20 µg
			FNR02-B	20 x 20 µg
Fibronectin Biotinylated	Bovine serum	>80%	FNR03-A	5 x 20 µg
			FNR03-B	20 x 20 µg
Laminin Red fluorescent, rhodamine	Engelbreth-Holm-Swarm mouse tumor	>90%	LMN01-A	5 x 20 µg
			LMN01-B	20 x 20 µg
Laminin Green fluorescent, HiLyte Fluor™ 488	Engelbreth-Holm-Swarm mouse tumor	>90%	LMN02-A	5 x 20 µg
			LMN02-B	20 x 20 µg
Laminin Biotinylated	Engelbreth-Holm-Swarm mouse tumor	>90%	LMN03-A	5 x 20 µg
			LMN03-B	20 x 20 µg

HiLyte Fluor is a trademark of Anaspec, Inc. (CA).

Intermediate Filament	Source	Purity	Cat. #	Amount
Vimentin Protein Recombinant	Syrian Hamster	>90%	V01-A	2 x 50 µg
			V01-C	10 x 50 µg

Bulk Discounts Available

Contact your local distributor for pricing



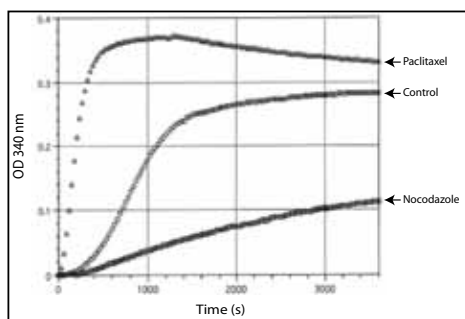
Tubulin Kits™ & Drug Target: Tubulin

Tubulin-based Biochem Kits™ provide an efficient means to study microtubule dynamics. These kits produce publication-quality data and have been cited in hundreds of publications.

Polymerization Assays

Tubulin polymerization assays are available in two formats: 1) the light scatter (also called absorbance or turbidometric) and 2) the fluorescence format based on the DAPI fluorophore. Both methods are sensitive to inhibitors and enhancers of polymerization. BK004P is an absorbance-based format used for hit or no hit screening results, whereas BK006P is for IC50 determinations which need more accuracy. BK011P, the fluorescent-based format, is used for screening and IC50s and is the most economical on a per assay basis.

Tubulin polymerization curves using Cat. # BK006P



Product	Cat. #	Amount
Tubulin Polymerization Assay Biochem Kit™ Turbidometric-based, >99% pure tubulin	BK006P	24-30 assays
Tubulin Polymerization Assay Biochem Kit™ Turbidometric-based, >97% pure tubulin	BK004P	24-30 assays
Tubulin Polymerization Assay Biochem Kit™ Fluorescence-based, >99% pure tubulin	BK011P	96 assays

More Tubulin Biochem Kits™ and Antibodies

The Microtubule/Tubulin *In Vivo* Assay Kit (Cat. # BK038) measures the ratio of microtubules to tubulin in cell and tissue extracts. Samples are homogenized in microtubule stabilizing lysis buffer, centrifuged, and then supernatant and pellet samples are run on SDS-PAGE, blotted onto a membrane and probed with anti-tubulin antibody. The tubulin antibody is great for dual and triple staining because the host animal is sheep, thus creating additional bandwidth for immunostaining.

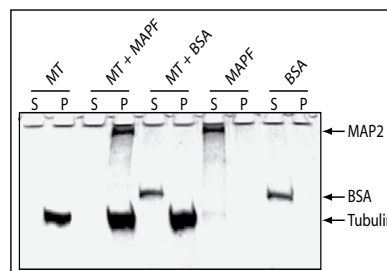
Tubulin Biochem Kits™	Cat. #	Amount
Microtubule / Tubulin <i>In Vivo</i> Assay Biochem Kit™ Quantitates <i>in vivo</i> ratio of tubulin polymers & monomers	BK038	30-100 assays
Tubulin polyclonal antibody (host: sheep) Detects all species and isoforms of tubulin	ATN02-A ATN02-B	1 x 100 µg 3 x 100 µg

Bulk Discounts Available
Contact your local distributor for pricing

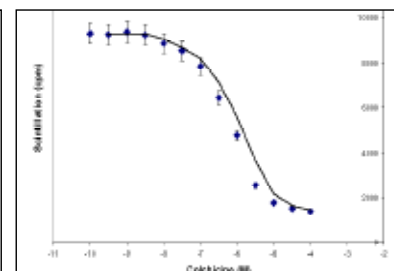
Binding Assays

Cytoskeleton offers reagents and kits to study molecular interactions with tubulin. The Microtubule Binding Assay (Cat. # BK029) provides a robust method to identify and quantify how your test substance interacts with microtubules (left panel below). Biotinylated tubulin (Cat. # T333P) for use in subunit (heterodimer) binding assays is also available. An example is the SPA based ligand competition assay that utilizes biotinylated tubulin (Cat. # T333P, H003) coupled to SPA beads (PerkinElmer) as originally described by Tahir et al. 2000 (Biotechniques, v29, pp156-160. Right panel below).

Microtubule Binding Assay (Cat. # BK029) used to detect MAP binding to microtubules



Tubulin Ligand Competition Assay using Cat. # T333P



Product	Cat. #	Amount
Tubulin (biotin labeled)	T333P-A T333P-B T333P-XL	5 x 20 µg 20 x 20 µg 1 x 500 µg
Microtubule Binding Protein Spin-Down Assay Biochem Kit™	BK029	30-100 assays

Specialized Tubulins For Improved Pathogen Targeting

Cytoskeleton provides a line of specialized tubulins which help you exploit the diversity between host and pathogen tubulin isoforms. In combination with these proteins, we have developed micro-assays to provide the most economical method of measuring drug interaction; e.g., 10 µl polymerization assay format and biotinylated conjugates for ligand binding assays are utilized.

- Micro-assay format
- Pure and active proteins from cancer, plant, and fungal sources

Products	Cat. #	Amount
HeLa Cancer Cell Tubulin Protein (90% bl, 10% bIV isoforms)	CS-H001-B	1 x 250 µg
HeLa Cancer Cell Tubulin Protein (biotinylated) (90% bl, 10% bIV isoforms)	H003	1 x 40 µg
MCF-7 Cell Tubulin Protein (55% bl, 6% bIII, 39% bIV isoforms)	CS-H005	1 x 250 µg
Fungal Cell Tubulin Protein (<i>Agaricus bisporus</i>)	F001	1 x 250 µg
Soybean Tubulin Protein	TP005	1 x 250 µg

Tubulin & FtsZ Proteins



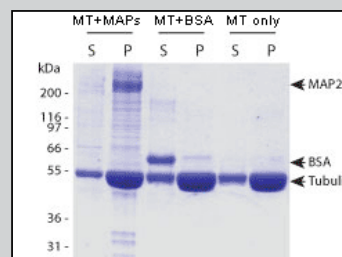
Bulk Discounts Available

Contact your local distributor for pricing

Unmatched activity and purity in the most comprehensive tubulin portfolio

Pre-formed Microtubules

- Eliminates the guess work when preparing microtubules
- Patented process delivers high reproducibility, 2 μ m average length
- Use as substrate for the discovery and characterization of microtubule binding proteins
- Ideal for HTS applications
- Supplied as a stable lyophilized powder
- Use to determine IC50s for kinesin inhibitors
- Use as a substrate for kinesin ATPases



MT binding spin-down assay using MT002.
>80% of MT002 (arrow: Tubulin) is in pellet (P) after spin-down. MAPs bind to MTs and end up in pellet while BSA does not and stays in supernatant (S).

Unlabeled Proteins

Unlabeled Proteins	Source	Purity	Cat. #	Amount
Tubulin Protein Lyophilized (no glycerol)	Porcine Brain	>99%	T240-A	1 x 1 mg
			T240-B	5 x 1 mg
			T240-C	20 x 1 mg
			T240-DX	1 x 10 mg
Tubulin Protein, MAP rich	Porcine Brain	70% tubulin 30% MAPs	ML116-A	1 x 1 mg
			ML116-B	5 x 1 mg
			ML116-DX	1 x 10 mg
			TL238-A	4 x 250 μ g
Tubulin Protein Lyophilized (no glycerol)	Bovine Brain	>99%	TL238-B	1 x 1 mg
			TL238-C	5 x 1 mg
			TL238-D	10 x 1 mg
			TL238-DX	1 x 10 mg
Tubulin for HTS Applications	Porcine Brain	97%	HTS03-A	1 x 4 mg
			HTS03-B	1 x 40 mg
Tubulin Protein Frozen (no glycerol)	Porcine Brain	>99%	T238P-A	1 x 1 mg
			T238P-B	5 x 1 mg
			T238P-C	20 x 1 mg
Microtubules pre-formed, lyophilized	Porcine brain	>99%	MT002-A	4 x 500 μ g
			MT002-XL	1 x 10 mg
Microtubules pre-formed, lyophilized	Bovine brain	>99%	MT001-A	4 x 500 μ g
			MT001-XL	1 x 10 mg
Cancer Cell Tubulin Protein	HeLa cells	>90%	CS-H001-B	1 x 250 μ g
Cancer Cell Tubulin Protein	MCF-7 cells	>90%	CS-H005	1 x 250 μ g
Plant Tubulin Protein	Soybean	>90%	TP005	1 x 250 μ g

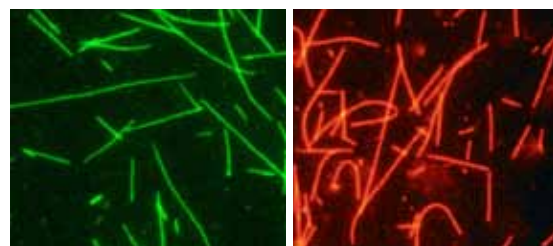
FtsZ Proteins

FtsZ Proteins	Source	Purity	Cat. #	Amount
FtsZ Protein	<i>E. coli</i> , recombinant, no tag	>85%	FTZ01-A	1 x 1 mg
			FTZ01-B	5 x 1 mg
FtsZ Protein	<i>S. aureus</i> , recombinant, 6xHis-tagged	>90%	FTZ02-A	1 x 1 mg
			FTZ02-B	5 x 1 mg
FtsZ Protein	<i>S. pneumoniae</i> , recombinant, 6xHis-tagged	>90%	FTZ03-A	1 x 1 mg
			FTZ03-B	5 x 1 mg
FtsZ Protein	<i>E. faecalis</i> , recombinant, 6xHis-tagged	>90%	FTZ04-A	1 x 1 mg
			FTZ04-B	5 x 1 mg
FtsZ Protein	<i>E. coli</i> , recombinant, 6xHis-tagged	>90%	FTZ05-A	1 x 1 mg
			FTZ05-B	5 x 1 mg

Buffers, Reagents, & MAPs

Tubulin Buffers, Reagents, & MAPs	Cat. #	Amount
General Tubulin Buffer 10 ml or 100 ml when resuspended	BST01-001	1 x 10 ml
	BST01-010	1 x 100 ml
	BST01-100	10 x 100 ml
GTP (100 mM stock when resuspended)	BST06-001	1 x 100 μ l
	BST06-010	10 x 100 μ l
Tubulin Glycerol Buffer Enhances tubulin polymerization	BST05-001	1 x 10 ml
Microtubule Associated Protein (MAP) Fraction Bovine brain MAP fraction, 70% MAP2	MAPF-A	1 x 100 μ g
	MAPF-C	5 x 100 μ g
Paclitaxel (2 mM stock when resuspended) Stabilizes microtubules	TXD01	10 x 100 μ l
Tau Protein Bovine brain	TA01-A	1 x 50 μ g
	TA01-B	3 x 50 μ g

Labeled Proteins



HiLyte Fluor™ 488 Labeled Tubulin
Cat. # TL488M

TRITC Rhodamine Labeled Tubulin
Cat. # TL590M

Labeled Tubulin Proteins	Ex / Em wavelength	T _{1/2} of fluorescence (s)	Source	Purity	Cat. #	Amount
AMCA Labeled Tubulin	350 +/- 20 nm 440 +/- 20 nm	10	Porcine Brain	>99%	TL440M-A	5 x 20 μ g
					TL440M-B	20 x 20 μ g
HiLyte Fluor™ 488 Labeled Tubulin	460 +/- 20 nm 520 +/- 20 nm	300	Porcine Brain	>99%	TL488M-A	5 x 20 μ g
					TL488M-B	20 x 20 μ g
TRITC Rhodamine Labeled Tubulin	535 +/- 20 nm 590 +/- 20 nm	50	Porcine Brain	>99%	TL590M-A	5 x 20 μ g
					TL590M-B	20 x 20 μ g
X-Rhodamine Labeled Tubulin	560 +/- 20 nm 620 +/- 20 nm	70	Bovine Brain	>99%	TL620M-A	5 x 20 μ g
					TL620M-B	20 x 20 μ g
HiLyte Fluor™ 647 Labeled Tubulin	620 +/- 20 nm 670 +/- 20 nm	80	Porcine Brain	>99%	TL670M-A	5 x 20 μ g
					TL670M-B	20 x 20 μ g
Biotin Tubulin	na	na	Porcine Brain	>99%	T333P-A	5 x 20 μ g
					T333P-B	20 x 20 μ g
					T333P-XL	1 x 500 μ g
Biotin Cancer Tubulin	na	na	HeLa cells	>90%	H003	1 x 40 μ g

HiLyte Fluor is a trademark of Anaspec, Inc. (CA).



This year we have expanded the range of kinesins and myosins, and introduced cytoplasmic dynein. Cytoskeleton is the only company to offer fully quality controlled motor proteins ready to use in microtubule and F-actin stimulated ATPase assays. Calcium sensitive thin filaments are also available for functional soluble sarcomere assays.

Microtubules and Other Reagents

Microtubules and Other Reagents	Cat. #	Amount
Microtubules, Pre-formed, lyophilized, porcine source A ready to use substrate for kinesin ATPase assays	MT002-A MT002-XL	4 x 500 µg 1 x 10 mg
Microtubules, Pre-formed, lyophilized, bovine source	MT001-A MT001-XL	4 x 500 µg 1 x 10 mg
Actin Filaments, Pre-formed, lyophilized A ready to use substrate for myosin ATPase assays	AKF99-A AKF99-B	1 x 1 mg 5 x 1 mg
Paclitaxel (2 mM stock when resuspended) Stabilizes microtubules in motor assays	TXD01	10 x 100 µl

Kinesin and Dynein Proteins

Kinesin & Dynein Proteins	Source	Purity	Cat. #	Amount
CENP-E Motor Domain Protein	<i>H. sapiens</i>	>85%	CP01-A CP01-XL	2 x 25 µg 1 x 1 mg
Chromokinesin Motor Domain Protein	<i>H. sapiens</i>	>85%	CR01-A	2 x 25 µg
New! Dynein (cytoplasmic)	<i>Porcine brain</i>	>80%	CS-DN01	1 x 50 µg 1 x 1 mg
Eg5 Motor Domain Protein	<i>H. sapiens</i>	>85%	EG01-A EG01-B EG01-XL	2 x 25 µg 10 x 25 µg 1 x 1 mg
Eg5 Homolog BimC Motor Domain Protein	<i>A. nidulans</i>	>85%	BM01-A	2 x 25 µg
Eg5 Homolog BimC Motor Domain Protein	<i>A. fumigatus</i>	>85%	EG02-A	2 x 15 µg
KIF3C Motor Domain Protein	<i>H. sapiens</i>	>85%	KC01-A	2 x 25 µg
KIF3C Motor Domain Protein	<i>H. sapiens</i>	>85%	KF01-A	2 x 25 µg
New! KIF7 motor domain	<i>H. sapiens</i>	>85%	CS-KF51	1 x 100 µg
Kinesin Heavy Chain Motor Domain Protein	<i>H. sapiens</i>	>85%	KR01-A KR01-XL	2 x 25 µg 1 x 1 mg
MCAK Motor Domain Protein	<i>H. sapiens</i>	>85%	MK01-A	2 x 25 µg
MKLP1 Motor Domain Protein	<i>H. sapiens</i>	>85%	MP01-A MP01-XL	2 x 25 µg 1 x 1 mg
New! MKLP2 Motor Domain Protein	<i>H. sapiens</i>	>85%	CS-MP05	1 x 100 µg

Myosin & Thin Filament Proteins

Myosin Proteins	Source	Purity	Cat. #	Amount
New! Myosin S1 fragment (cardiac)	Bovine	>85%	CS-MYS03	1 x 250 µg 1 x 1 mg
New! Myosin S1 fragment (skeletal)	Rabbit	>85%	CS-MYS04	1 x 250 µg
New! Myosin S1 fragment (smooth)	Chicken	>85%	CS-MYS05	1 x 250 µg
New! Myosin S1 fragment (spleen non-muscle)	Bovine	>85%	CS-MYS06	1 x 250 µg
Myosin II Skeletal Muscle Protein	Rabbit	>85%	MY02-A MY02-B	5 x 1 mg 10 x 1 mg
Myosin Cardiac Muscle Protein	Rabbit	>85%	MY03-A MY03-B	5 x 1 mg 20 x 1 mg
Heavy Meromyosin Skeletal Muscle Protein	Rabbit	>85%	MH01-A	4 x 50 µg
Pre-formed F-actin filaments	Rabbit	>99%	AKF99-A AKF99-B	1 x 1 mg 5 x 1 mg
Actin Thin Filaments (cardiac) Calcium sensitive complex of F-actin, tropomyosin α/β & Troponin C,I,T	Bovine	>85%	CS-TFC01	1 x 1 mg
New! Tropomyosin / Troponin Complex Cardiac tropomyosinα/β and Troponin C,I,T	Bovine	>60%	CS-TT05	1 x 1 mg 1 x 5 mg

Motor Protein Antibodies

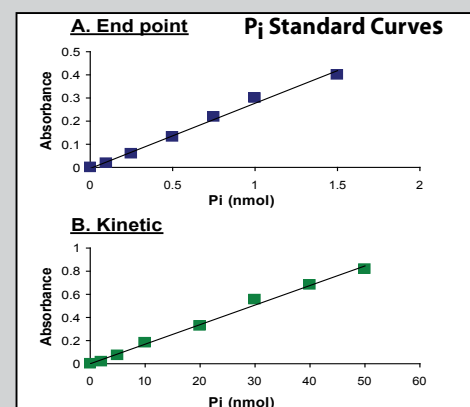
Motor Protein Antibodies	Host	Type	Cat. #	Amount
Kinesin Heavy Chain (D.melanogaster)	Rabbit	PAb	AKIN01-A	1 x 50 µg
CENP-E human motor domain	Rabbit	PAb	AKIN04-A	1 x 50 µg
MCAK human motor domain	Rabbit	PAb	AKIN05-A	1 x 50 µg
MKLP1 human motor domain	Rabbit	PAb	AKIN06-A	1 x 50 µg
KIF3C human stalk region	Rabbit	PAb	AKIN09-A	1 x 50 µg
KIF1C human stalk region	Rabbit	PAb	AKIN11-A	1 x 50 µg
KID human stalk region	Rabbit	PAb	AKIN12-A	1 x 50 µg
Hklp2 human stalk region	Rabbit	pAb	AKIN13-A	1 x 50 µg

ATPase, GTPase, and Phosphatase Biochem Kits™

ATPases, GTPases, and other phosphatases liberate inorganic phosphate (Pi) from their respective triphosphate nucleotide or substrate. Cytoskeleton, Inc. has the largest range of phosphate assays, allowing researchers to choose an exact fit for their application. BK051-BK054 are suitable for HTS applications. Biochem Kits™ BK051-BK054 and BK060 measure liberated phosphate via binding to a reporter dye or by enzymatic

conversion into a reporter molecule. BK053 and BK054 are end point assays suitable for measuring microtubule-induced kinesin ATPase or F-actin-induced myosin ATPase activity. BK051, BK052 and BK060 are kinetic assays and are therefore suitable for Vmax or Kcat determinations. These kits require a higher level activity ATPase or GTPase for sufficient sensitivity. BK060 is specialized for kinesins.

Phosphate Quantitation Biochem Kits™	Cat. #	Amount
ATPase ELIPA™ (enzyme linked, colorimetric) Kinetic quantitation of ATP hydrolysis (Kcat 0.05 to >1.0)	BK051	96 assays
CytoPhos™ Phosphate Assay (end point assay) Colorimetric assay for ATPases & GTPases (Kcat 0.01 to >1.0)	BK054	1000 assays
GTPase ELIPA™ (enzyme linked, colorimetric) Kinetic quantitation of GTP hydrolysis (Kcat 0.05 to >1.0)	BK052	96 assays
Kinesin ELIPA™ Biochem Kit For real time kinetic and Vmax kinesin ATPase measurements	BK060	96 assays
Kinesin ATPase End Point Assay For end point measurement of kinesin ATPase activity	BK053	1000 assays



Comparison of standard curves of Cytoskeleton's end point (BK053 and BK054) and kinetic (BK051/52 and BK060) phosphate assays. End point assays have a linear response between 0.1 and 1.5 nmol Pi. Kinetic assays give a linear response between 2 and 50 nmol Pi.



- **New this year** is a focus on molecular motors such as myosin, kinesin, and cytoplasmic dynein proteins.
 - Clearly defined modules allow you to rapidly choose the ideal assay or protein purification module.
 - Dedicated scientists provide timely updates and detailed reporting.

About Custom Services

Like our regular product offerings, the Custom Services department emphasizes quality products and services. We understand that **accuracy** and **timeliness** are critical elements for a successful project. Choose from more than twenty defined modules (for a full list, visit www.cytoskeleton.com/custom-services), and then contact Technical Support (tservice@cytoskeleton.com). The process

will start with an experienced scientist asking for **details, specifications, and success factors** for the project. Within 24 hours, the quotation will arrive and work can start at the next available schedule date. The project will continue with regular updates via e-mail until it is complete. After this point, we support your project through timely citation based advice and practical experience.

Clients Include:

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- Abbott Laboratories
- Pfizer, Inc.
- Astra-Zeneca plc
- GlaxoSmithKline plc
- Genentech, Inc.
- Johnson & Johnson
- Bristol-Meyers Squibb

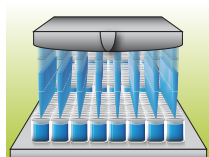
Getting started is as easy as 1, 2, 3!

1. Choose a module and contact tservice@cytoskeleton.com for a quote. Our scientists will respond within 24 hours.
2. Review your quote, specifications, and deliverables.
3. Place your order and we will send regular updates until the project is finished!

All projects are completed with a PDF Report containing:

- Executive Summary
- General Introduction
- Methods
 - Results
 - Data Analysis

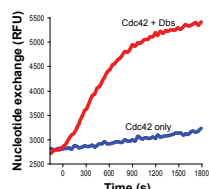
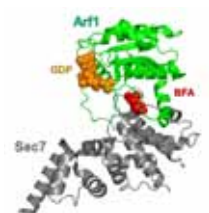
Compound Screening Modules



Name of target	Type of assay	Assay Format	Timeline (wks)	Module #
Kinesin or dynein motor	Microtubule stimulated kinesin ATPase assay	96 well plate with eleven motors to choose from, consisting of 40 duplicate single concentrations (or 5 x IC50s), plus eight control wells. Absorbance at 360 or 650 nm, or fluorescence at 360 nm / 450 nm.	2	CDS052
Myosin motor domain	F-actin stimulated myosin ATPase assay	Same as above, with four different myosins (cardiac, smooth, skeletal and non-muscle) to choose from. Absorbance at 360 or 650 nm, or fluorescence at 360 nm/ 450 nm.	2	CDS056
Tubulin polymerization	Tubulin (>99% pure) Polymerization Assay	96 well plate using porcine brain tubulin, consisting of 40 duplicate single concentrations or 5 x IC50 determinations, plus eight control wells. Absorbance at 340 nm or fluorescence at 360 nm / 410 nm.	2	CDS009 or CDS010
GEF or GAP assay	Small G-protein Exchange or Activating Assay	96 well format, multiple GEFs and GAPs to choose from, consisting of either 28 duplicate reactions plus 4 controls, or 5 x IC50s plus 1 x control IC50. GAP assay is absorbance at 650 nm, GEF assay is fluorescence at 360nm/450nm.	2	CDS100 and CDS105

Protein Purification Modules

Type	Name	Deliverable	Timeline (wks)	Module #
Recombinant Protein	Small protein or protein domain (<30 kDa) with gene provided by client	Highly purified, His-tagged active protein lyophilized in 10 x 100 µg aliquots (or more depending on yield). Datasheet and assay method. Activity in line with published articles. <i>E. coli</i> expression.	4	REC012
Recombinant Protein	Small protein or protein domain (<30 kDa) including gene synthesis	Same as above.	8	REC022
Recombinant Protein	Medium to large protein or protein domain (30-100 kDa) with gene synthesis	Same as above.	10	REC032
Recombinant Protein	Eukaryotic expression system with gene synthesis	Same as above except with a single gene expressed in Baculovirus or CHO cells (multiple genes also available).	12	REC042
Native protein purification	Cited protein purification	Same as above plus using a published procedure.	varies	REC052



For more information please contact tservice@cytoskeleton.com or call 303-322-2254.

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Biyokimya - Eliza - Pcr - Analitik ve Diagnostik
Cihaz ve Sarf Malzemeleri

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