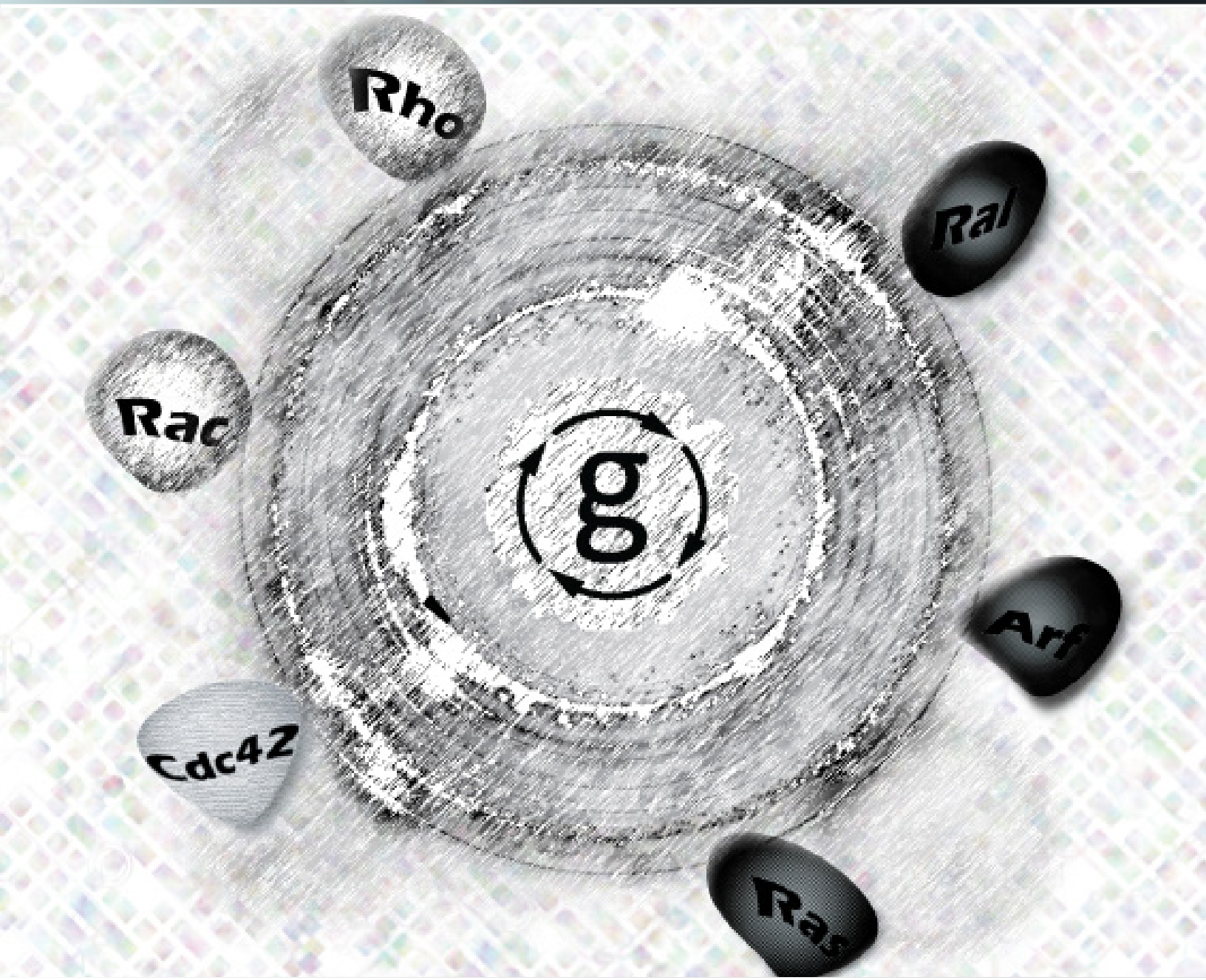
Cytoskeleton, Inc.

The Protein Experts

Cytoskeleton's Small G-Protein Tools

A Broad Spectrum Of Tools To Investigate Small GTPases



Uniquely Superior Tools
by ***Cytoskeleton, Inc.***

Small G-Proteins

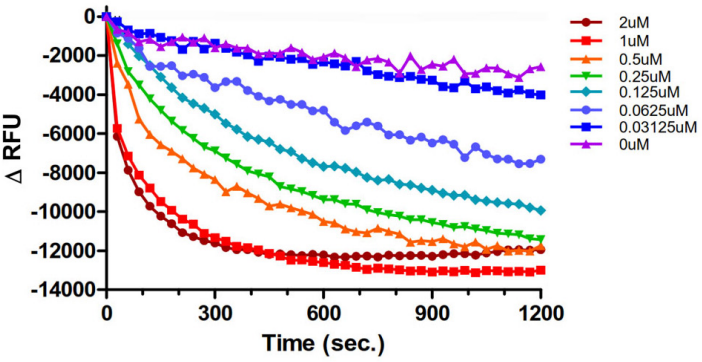
Cytoskeleton's Small G-Protein Tools

The Ras superfamily of small GTPases consist of more than 150 members, which based on their sequence homology, are divided into several subfamilies such as Rho, Ras, Ran, Rab, Arf and Rad/Rem/Gem/Kir. This group of small GTPases serve as binary switches cycling between GDP-bound inactive and GTP-bound active state, and have been shown to regulate biological processes including cell growth, cell differentiation, and cell movement. Small G-protein nucleotide exchange is modulated by several classes of proteins including guanine nucleotide exchange factors (GEFs), GTPase activating proteins (GAPs) and guanine nucleotide dissociation inhibitors (GDIs). Cytoskeleton, Inc. has a wide assortment of Small G-protein tools and reagents to aide in your Small G-protein investigation. Browse through this brochure to see a sampling of our Small G-protein tools including purified proteins, Biochem Kits™, potent activators and inhibitors, and so much more.

Purified G-proteins (WT and Mutants)

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 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 His Protein, wild-type	>90%	RC01-A RC01-C RC01-XL	1 x 100 µg 3 x 100 µg 1 x 1 mg
K-Ras4B Protein, human rec., wild-type	>90%	CS-RS03	1 x 100 µg
N-Ras Protein, human rec., wild type	>90%	CS-RS02	1 x 100 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

See our full list of purified Small G-proteins @ Cytoskeleton.com

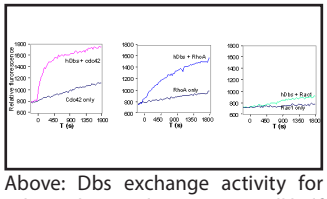


Legend: K-Ras4B protein (Cat. # RS03) (2.5 µM) was pre-loaded with Bodipy-FL-GDP using EDTA for exchange. The nucleotide was locked in place with excess Mg2+. RasGRF at different concentrations as shown or Dilution Buffer (purple) was pipetted into wells of a black 384-well low volume plate. At time zero, 500 µM GTP was pipetted in to the wells and the reactions were monitored for 20 min by reading every 30 sec.

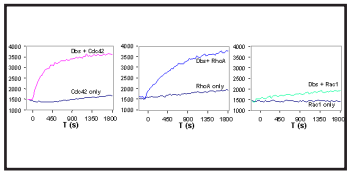
RhoGEF Assay Biochem Kit™

Fluorophore-based assay measures fluorescent-GTP nucleotide exchange on small G-proteins.

- Flouorescent-GTP included, 365nm Ex / 485nm Em.
- Reaction buffer included
- Control GEF and GTPase proteins included
- GEF domain of Dbs (Positive control)
- Useful with all other small G-proteins



Above: Dbs exchange activity for Cdc42, RhoA and Rac1 in 96-well half area plate format.



Above: Dbs exchange activity for Cdc42, RhoA and Rac1 in 384-well plate format

Signal Transduction Kits	Cat. #	Amount
RhoGEF Exchange Assay Biochem Kit™	BK100	60-300 assays
RhoGAP Assay Biochem Kit™	BK105	80-160 assays
GTPase CytoPhos™ Assay One step assay for enzyme Kcat 0.01 to 100	BK054	1000 assays

GEF, GAP, and GDI Effector Proteins

G-Protein Modulator & Effector Proteins	Purity	Cat. #	Amount
Dbs His Protein, RhoGEF domain (DH/PH) GEF for Cdc42 and RhoA	>80%	GE01-A	2 x 50 µg
p50RhoGAP GST Protein, GAP domain GAP for Cdc42, Rac, and Rho	>90%	GAS01-A GAS01-B	1 x 50 µg 4 x 50 µg
Ras-GRF GEF protein Cdc25 domain Human recomb., MBP tagged	>85%	CS-GE03	1 x 100 µg
RhoGDI GST Protein Inhibitor of Cdc42, Rac, and Rho	>90%	GDI01-A	1 x 25 µg
SOS1 Ras GEF Domain Protein GEF for H-, K- or N-Ras	>90%	GE02 GE02-XL	1 x 100 µg 1 x 1 mg
Vav1 GEF protein, GEF for Rac. Human recomb. DHPHC1 domain Y174D mutant, 6xHis tagged	>85%	CS-GE05	1 x 100 µg

See our full list of GEF, GAP, and GDI proteins @ Cytoskeleton.com

Antibodies for Small G-proteins

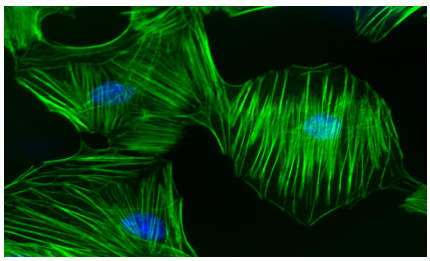
Small G-protein Antibodies	Host	Type	Species Reactivity	Cat. #	Amount
Cdc42 Specific Antibody Human Cdc42 Peptide	Mouse	mAb	Hu, Ms, Rt, other extracts	ACD03 ACD03-S	2 x 200 µl 1 x 50 µl
Rac1 Specific Antibody Human C-terminal Peptide	Mouse	mAb	Hu, Ms, Rt, other extracts	ARC03 ARC03-S	2 x 100 µl 1 x 50 µl

Small G-Proteins

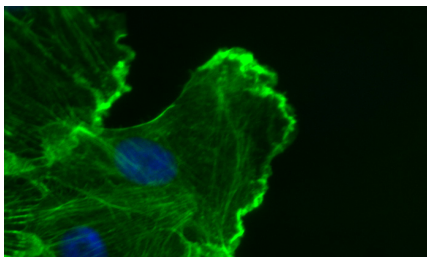
G-Switch: Activators and Inhibitors

The G-switch™ line of Small G-protein tools are 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.

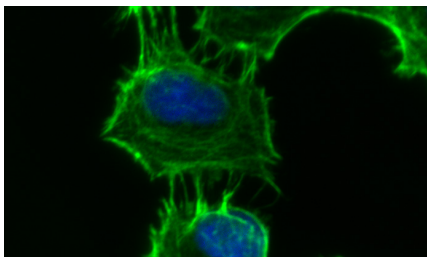
G-protein Modulator	Cell Entry Mechanism	Protein Modulation	Cat. #	Amount
Rho Activator II Deamidation of Rho Gln-63	Cell permeable	Direct	CN03-A CN03-B	3 x 20 µg 9 x 20 µg
Rho Inhibitor I Specific inhibitor of Rho activity, ADP ribosylation of Rho Asn-41 (very cell permeable)	Cell permeable	Direct	CT04-A CT04-B CT04-C	1 x 20 µg 5 x 20 µg 20 x 20 µg
C3 Transferase Protein Specific inhibitor of Rho activity, ADP ribosylation of Rho Asn-41 (limited cell permeability)	Pinocytosis	Direct	CT03-A CT03-C	1 x 25 µg 4 x 25 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 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



Stress fibers caused by Rho activation using Cat. # CN03. Actin stained green with Cat. # PHDG1.



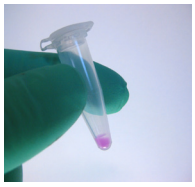
Membrane ruffles induced by Rac activation using Cat. # CN04. Actin stained green with Cat. # PHDG1.



Microspikes induced by Cdc42 activation using Cat. # CN02. Actin stained green with Cat. # PHDG1.

Cytoskeleton's Active Small G-Protein Detection Tools

PAK-PBD, GGA3-PBD, Rhotekin-RBD, and Raf-RBD bead conjugates are tools to separate the active form of small G-proteins from cell lysates. PAK beads are ideally suited for Cdc42 and Rac1 studies, GGA3 is specific for Arf1 and Arf6, Rhotekin is specific for Rho, and Raf-beads are specific for the Ras sub-family. The beads are colored to easily identify pellet material (Cytoskeleton Innovated).



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

GTPase Affinity Beads & Proteins

GTPase Affinity Beads and Proteins	Purity	Cat. #	Amount
GGA3-PBD Beads Binds active (GTP-bound) Arf1 and Arf6	>85%	GGA07-A	1 x 500 µg
PAK-PBD Protein Binds active (GTP-bound) Cdc42 and Rac1,2,3	>80%	PAK01-A PAK01-B	1 x 250 µg 4 x 250 µg
PAK-PBD Beads Binds active (GTP-bound) Cdc42 and Rac1,2,3	>80%	PAK02-A PAK02-B	1 x 500 µg 4 x 500 µg
Raf-RBD Beads Binds active (GTP-bound) K-, N-, H-Ras	>80%	RF02-A RF02-B	1 x 2 mg 4 x 2 mg
Rhotekin-RBD Protein Binds active (GTP-bound) RhoA,B,C	>90%	RT01-A	1 x 500 µg
Rhotekin-RBD Beads Binds active (GTP-bound) RhoA,B,C	>85%	RT02-A RT02-B	2 x 2 mg 6 x 2 mg

G-LISA and Activation Assays

G-LISA Small GTPase Activation Assays offer a fast and sensitive method for measuring GTP-bound active small G-protein. Cytoskeleton, Inc. was the original developer of these activation assay tools.

See our Activation Assay Brochure To Learn More
Or scan this QR Code:

Activation Assay Video

Learn which assay format is right for you.
www.cytoskeleton.com/activationassayvideo

Cytoskeleton, Inc.
The Protein Experts

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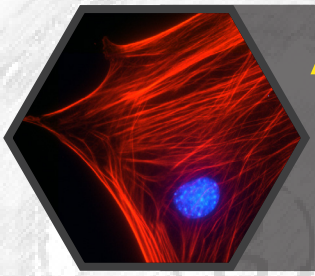
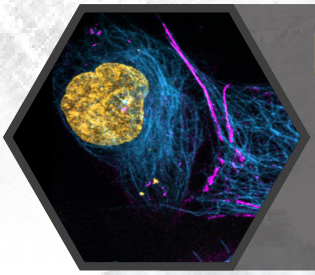


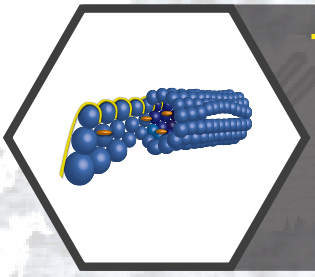
Actin Tools

- Acti-Stain Phalloidins
- Ultra Pure Actin Proteins
- New Pan-Actin Antibody



Live Cell Imaging Tools

- Spirochrome: Actin, DNA, and Tubulin Tools
- New MemGlow™ Fluorogenic Probes
- New Mechanosensory Probes and SPY-BG Dyes



Tubulin Tools

- Tubulin Polymerization Assays
- Tubulin Binding Assays
- Labeled and Unlabeled Tubulin Proteins