



碧云天生物技术/Beyotime Biotechnology  
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## Recombinant Human Cdc42 (Q61L, Flag-Tag)

产品编号	产品名称	包装
P2453-10μg	Recombinant Human Cdc42 (Q61L, Flag-Tag)	10μg
P2453-100μg	Recombinant Human Cdc42 (Q61L, Flag-Tag)	100μg
P2453-1mg	Recombinant Human Cdc42 (Q61L, Flag-Tag)	1mg

### 产品简介:

Species	Gene ID	Accession	Source	Length	MW	Tag
Human	998	P60953	<i>E.coli</i>	198aa	~22kDa	C-Flag Tag

蛋白信息(About this protein)	
名称(Name)	Recombinant Human Cdc42 Q61L, 重组人Cdc42蛋白Q61L突变体蛋白
别名(Synonyms)	Cell division control protein 42, Cell division cycle 42, G25K GTP-binding protein, CDC42Hs, G25K, TKS, Cdc42 constitutively active form mutation
产品简介 (Background)	Beyotime's recombinant human Cdc42 (rhCdc42 Q61L) was expressed in <i>E.coli</i> and purified, which contains the mature form Cdc42 (2-188aa) with Flag tag (DYKDDDDK) at the C-terminus. Cdc42 is involved in the regulation of a variety of tumor and non-tumor diseases through a cascade of multiple signaling pathways. Active Cdc42 can regulate intercellular adhesion, cytoskeleton formation, and cell cycle, thus affecting cell proliferation, transformation, and dynamic balance as well as migration and invasion of tumor cells by regulating the expression of effector proteins [1]. G12V and Q61L mutations of CDC42 cause GAP insensitivity leading to sustained hyperactivation of CDC42 [2-3].
产品用途 (Applications)	Recombinant Human Cdc42 Q61L is useful in studying Cdc42 interacting proteins, effectors, GAPs (GTPase-activating proteins) and GEFs (Guanine nucleotide-exchange factors). It can also be used as positive control in Western blot.
外观 (Physical Appearance)	Liquid
活性 (Biological activity)	Not detectable
浓度 (Concentration)	1mg/ml
纯度(Purity)	≥95% by SDS-PAGE
储存液 (Storage buffer)	50mM Tris pH 7.4, 0.5mM MgCl <sub>2</sub> , 50mM NaCl, 1mM DTT

- 小GTP酶(Small GTPase), 也称Small G-proteins、Ras superfamily, 是调节真核细胞信号转导、细胞增殖、细胞骨架重组和细胞内膜转运等过程的分子开关, 小GTP酶通过结合和水解GTP, 在“激活”和“静息”状态之间循环: 在外界信号的刺激下, 鸟苷酸交换因子(Guanine nucleotide-exchange factors, GEFs)辅助小GTP酶将结合的GDP置换为GTP, 小GTP酶结合GTP进入激活状态(Active state); 激活状态的小GTP酶与下游效应蛋白(Effector protein)相互作用, 从而刺激细胞发生相应的响应; GTP酶激活蛋白(GTPase-activating proteins, GAPs)催化小GTP酶结合的GTP水解为GDP, 并释放自由磷酸盐(Free phosphate, Pi), 此时小GTP酶结合GDP进入静息状态(Inactive state), 鸟嘌呤核苷酸解离抑制蛋白(Guanine nucleotide dissociation inhibitors, GDIs)抑制小GTP酶释放GDP, 直到GEFs受到刺激信号再次开启新一轮的循环(图1) [4-5]。

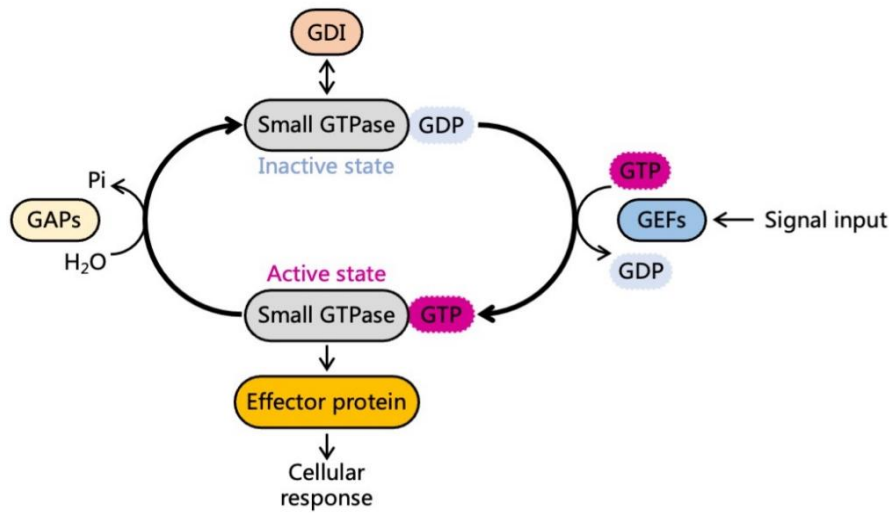


图1. 小GTP酶在“激活”和“静息”状态之间循环的原理图。

- 小GTP酶在人类中已发现超过150个家族成员，在果蝇(*Drosophila*)、秀丽隐杆线虫(*C. elegans*)、酿酒酵母(*S. cerevisiae*)、粟酒裂殖酵母(*S. pombe*)、黏菌(*Dictyostelium*)和植物中也发现了保守的同源物。小GTP酶根据结构和功能被分为5个家族分支：Ras家族、Rho家族、Ran家族、Rab家族和Arf家族。Ras家族本身又被分为6个亚家族：Ras亚家族、Ral亚家族、Rit亚家族、Rap亚家族、Rheb亚家族和Rad亚家族[6]。
- Rho家族(Ras homologous GTPases)在真核生物中高度保守，是调节肌动蛋白重组的关键因子，因此在细胞迁移、伤口愈合、细胞粘附、细胞极性、膜转运和细胞分裂等过程中发挥着重要作用。目前有21个成员被发现，被分为8亚家族(见下表)，其中RhoA、Rac1和Cdc42研究的最为广泛[7]。

Subfamily	Rho	Rac	Cdc42	RhoH	RhoBTB	RhoUV	Rnd	RhoF
Rho family members	RhoA RhoB RhoC	Rac1 Rac2 Rac3 RhoG	Cdc42 RhoQ (TC10) RhoJ (TCL)	RhoH	RhoBTB1 RhoBTB2 RhoBTB3	RhoU (Wrch) RhoV (Chp)	Rnd1 Rnd2 Rnd3 (RhoE)	RhoD RhoF (Rif)

- 本产品经SDS-PAGE电泳检测蛋白纯度和分子量参考图2。

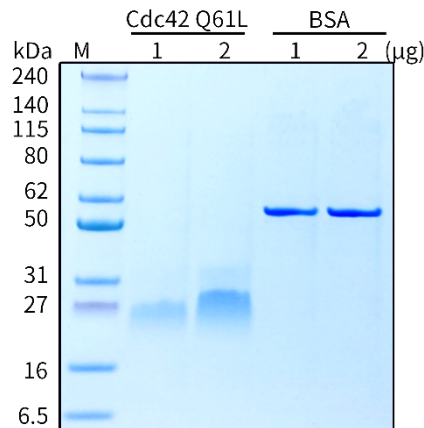


图2. 碧云天Recombinant Human Cdc42 (Q61L, Flag-Tag) (P2453)的SDS-PAGE电泳检测图。本蛋白经BeyoGel™ Elite PAGE预制胶(Bis-Tris, 12%, 10孔) (P0849)电泳, Marker为BeyoColor™彩色预染蛋白分子量标准(6.5-270kD) (P0071/P0072), 并经BeyoBlue™考马斯亮蓝超快染色液(P0017F)染色。实际检测结果可能会因样品和检测条件等的不同而存在差异, 图中数据仅供参考。

### 包装清单:

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P2453-10μg	Recombinant Human Cdc42 (Q61L, Flag-Tag) (1mg/ml)	10μl
P2453-100μg	Recombinant Human Cdc42 (Q61L, Flag-Tag) (1mg/ml)	100μl
P2453-1mg	Recombinant Human Cdc42 (Q61L, Flag-Tag) (1mg/ml)	1ml
—	说明书	1份

### 保存条件:

-20°C保存, 一年有效。-80°C保存, 可以保存更长时间。

### 注意事项:

- 由于蛋白每次冻融均会引起部分失活，所以首次配制成相应浓度的储存液后，须分装后-20°C或更低温度冻存，尽量避免反复冻融。
- 本产品仅限于专业人员的科学研究用，不得用于临床诊断或治疗，不得用于食品或药品，不得存放于普通住宅内。
- 为了您的安全和健康，请穿实验服并戴一次性手套操作。

### 使用说明：

1. 收到产品后请立即按照说明书推荐的条件保存。在打开管盖前，请适当离心，使附着在管盖或管壁上的蛋白聚集于管底。
2. 具体的最佳工作浓度请自行参考相关文献，或者根据实验目的，通过实验进行摸索和优化。

### 参考文献：

1. Murphy NP, Binti Ahmad Mokhtar AM, Mott HR, Owen D. Biochem Soc Trans. 2021. 49(3):1425-42.
2. Subauste MC, Von Herrath M, Benard V, Chamberlain CE, Chuang TH. J Biol Chem. 2000. 275(13):9725-33.
3. Mosaddeghzadeh N, Pudewell S, Bazgir F, Kazemineh Jasemi NS, et al. Int J Mol Sci. 2022 Aug 9;23(16):8842.
4. Vernoud V, Horton AC, Yang Z, Nielsen E. Plant Physiol. 2003. 131(3):1191-208.
5. Ito H, Morishita R, Nagata KI. Int J Mol Sci. 2018. 19(7):2121.
6. Goitre L, Trapani E, Trabalzini L, Retta SF. Methods Mol Biol. 2014. 1120:1-18.
7. Hall A. Biochem Soc Trans. 2012. 40(6):1378-82.

### 相关产品：

产品编号	产品名称	包装
P2061	Rhotekin-RBD Agarose (活性Rho结合琼脂糖凝胶)	1ml
P2431	Raf1-RBD Agarose (活性Ras结合琼脂糖凝胶)	1ml
P2437	PAK1-PBD Agarose (活性Cdc42/Rac结合琼脂糖凝胶)	1ml
P2065	Active Rho Pull-down and Detection Kit	50次/250次
P2433	Active Ras Pull-down and Detection Kit	50次/250次
P2438	Active Cdc42 Pull-down and Detection Kit	50次/250次
P2439	Active Rac1 Pull-down and Detection Kit	50次/250次
P2435	GTP酶活性检测试剂盒(显色法)	500次/2500次
P2063	Recombinant Human RhoA (Flag-Tag)	10µg/100µg/1mg
P2401	Recombinant Human NRas (Flag-Tag)	10µg/100µg/1mg
P2403	Recombinant Human HRas (His-Tag)	10µg/100µg/1mg
P2405	Recombinant Human KRas4A (His-Tag)	10µg/100µg/1mg
P2407	Recombinant Human KRas4B (His-Tag)	10µg/100µg/1mg
P2409	Recombinant Human KRas4B (G12C, His-Tag)	10µg/100µg/1mg
P2411	Recombinant Human KRas4B (G12D, His-Tag)	10µg/100µg/1mg
P2413	Recombinant Human KRas4B (G12V, His-Tag)	10µg/100µg/1mg
P2415	Recombinant Human KRas4B (G13D, His-Tag)	10µg/100µg/1mg
P2417	Recombinant Human KRas4B (G13S, His-Tag)	10µg/100µg/1mg
P2419	Recombinant Human KRas4B (Q61H, His-Tag)	10µg/100µg/1mg
P2451	Recombinant Human Cdc42 (Flag-Tag)	10µg/100µg/1mg
P2453	Recombinant Human Cdc42 (Q61L, Flag-Tag)	10µg/100µg/1mg
P2455	Recombinant Human Cdc42 (G12V, Flag-Tag)	10µg/100µg/1mg
P2461	Recombinant Human Rac1 (Flag-Tag)	10µg/100µg/1mg
P2463	Recombinant Human Rac1 (Q61L, Flag-Tag)	10µg/100µg/1mg
P2465	Recombinant Human Rac1 (T17N, Flag-Tag)	10µg/100µg/1mg
P2469	Recombinant Human Rac2 (Flag-Tag)	10µg/100µg/1mg
AF0273	Ras Rabbit Polyclonal Antibody	50µl
AF1168	Ras Rabbit Monoclonal Antibody	50µl
AF7131	HRas Rabbit Polyclonal Antibody	50µl
AF7347	KRas Rabbit Polyclonal Antibody	50µl
AG2391	KRas Rabbit Monoclonal Antibody	50µl
AG2394	KRas Mouse Monoclonal Antibody	50µl
AF2794	CDC42 Rabbit Monoclonal Antibody	50µl
AG3059	Rac1 Mouse Monoclonal Antibody	50µl

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