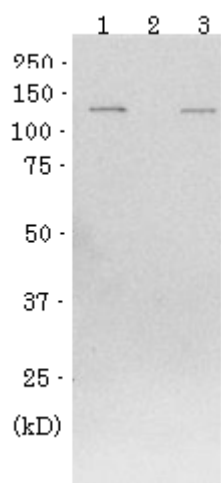


## Anti- $\beta$ galactosidase antibody, rabbit polyclonal

<b>Product code</b>	60-060
<b>Size</b>	200 $\mu$ g
<b>Storage</b>	-20°C
<b>Concentration</b>	2.0 mg/ml
<b>Buffer</b>	PBS- with 50% glycerol
<b>Purity</b>	Purified IgG fraction with protein A from rabbit antiserum
<b>Immunogen</b>	Full-size <i>E. coli</i> $\beta$ Galactosidase
<b>Isotype</b>	Rabbit IgG
<b>Reactivity</b>	<i>E. coli</i> $\beta$ -Galactosidase and $\beta$ -Gal tagged proteins
<b>Special notes</b>	N/A
<b>Application</b>	<ol style="list-style-type: none"> <li>1. Western blotting (1/ 1,000 ~1/2,000 )</li> <li>2. Immunoprecipitation ( 1/200~1/500 )</li> <li>3. Immunofluorescent staining ( 1/200~1/500 )</li> <li>4. ELISA (1/2,000~1/3,000)</li> </ol> Not tested for other application
<b>Background</b>	<p><math>\beta</math>-galactosidase is an exoglycosidase which hydrolyzes the <math>\beta</math>-glycosidic bond formed between agalactose and its organic moiety. It may also cleave fucosides and arabinosides but with much lower efficiency. It is an essential enzyme in the human body. Deficiencies in the protein can result in galactosialidosis or Morquio B syndrome. In <i>E. coli</i>, the gene of <math>\beta</math>-galactosidase, the <i>lacZ</i> gene, is present as part of the inducible system <i>lac</i> operon which is activated in the presence of lactose when glucose level is low. It is commonly used in molecular biology as a reporter marker to monitor gene expression. It also exhibits a phenomenon called <math>\alpha</math>-complementation which forms the basis for the blue/white screening of recombinant clones. This enzyme can be split in two peptides, <i>LacZ<math>\alpha</math></i> and <i>LacZ<math>\Omega</math></i>, neither of which is active by itself but when both are present together, spontaneously reassemble into a functional enzyme. This property is exploited in many cloning vectors where the presence of the <i>lacZ<math>\alpha</math></i> gene in a plasmid can complement in <i>trans</i> another mutant gene encoding the <i>LacZ<math>\Omega</math></i> in specific laboratory strains of <i>E. coli</i>. However, when DNA fragments are inserted in the vector, the production of <i>LacZ<math>\alpha</math></i> is disrupted, the cells therefore show no <math>\beta</math>-galactosidase activity. The presence or absence of an active <math>\beta</math>-galactosidase may be detected by X-gal, which produces a characteristic blue dye when cleaved by <math>\beta</math>-galactosidase, thereby providing an easy means of distinguishing the presence or absence of cloned product in a plasmid. <i>E. coli</i> <math>\beta</math>-Galactosidase consists of 1,024 amino acids with molecular mass of 116 kDa and functional form is a homotetramer.</p>
<b>Data Link</b>	UniProtKB <a href="#">B7UJI9</a> (BGAL_ECO27) Entrez Gene <a href="#">945006</a> ( <i>E. coli lacZ</i> )
Please note: All products are FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES. NOT FOR MILITARY USE.	

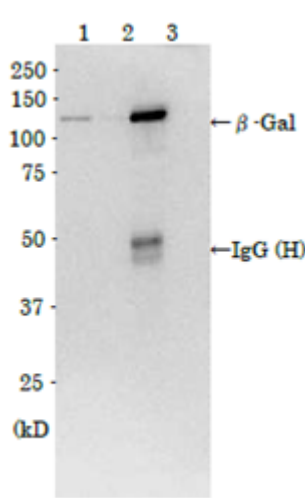
**Data Images:** 60-060 Anti- $\beta$  Galactosidase antibody, rabbit polyclonal



**Fig.1 Western blot analysis of  $\beta$ -galactosidase in E. coli crude extract .**

1. Purified  $\beta$ -galactosidase, 10 ng
2. Uninduced E. coli K12 cell extract (30  $\mu$ g)
3. E.coli K12 cell extract induced by IPTG for  $\beta$ -galactosidase expression (30  $\mu$ g)

The anti- $\beta$ -galactosidase antibody was used at 1/1,000 dilution. Molecular mass of  $\beta$ -galactosidase is 116 kDa.

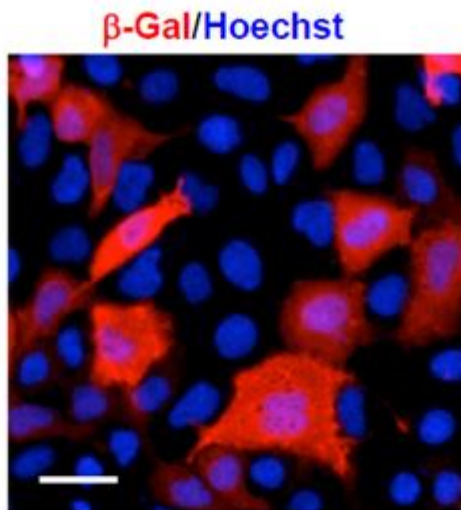


**Fig.2 Immunoprecipitation of  $\beta$ -galactosidase from E, coli crude extract**

Sample: Crude extract of E. coli K12 cells induced by IPTG for  $\beta$ -galactosidase expression.

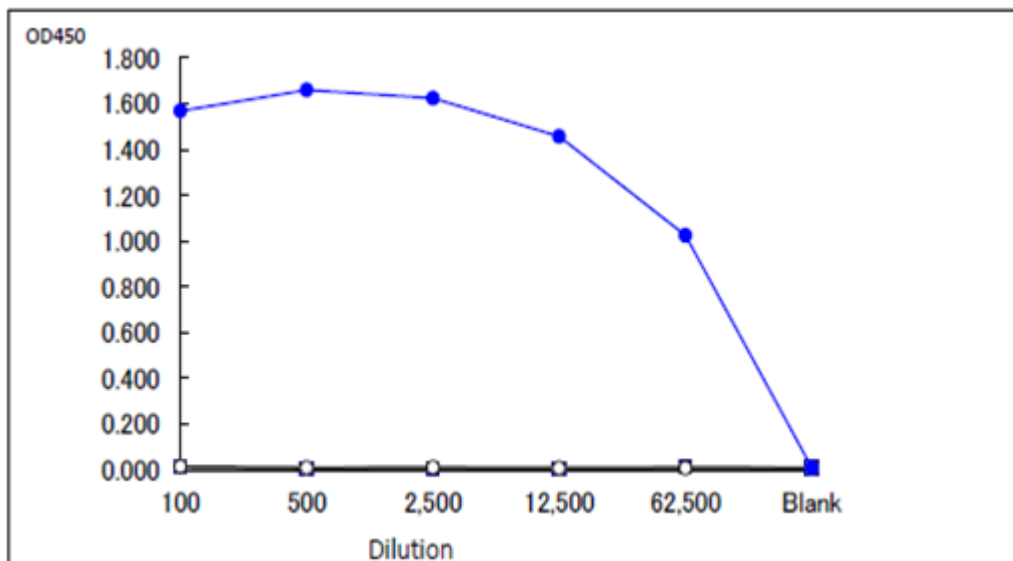
1. Crude cell extract
2. Supernatant of the immuno-precipitated E. coli crude extract
3. Immuno-precipitate of crude E. coli extract

The anti- $\beta$ -galactosidase antibody was used at 1/500 dilution for immune-precipitation and 1/1,000 dilution for western blotting. IgG (H) is heavy chain of IgG



**Fig.3 Immunofluorescence staining of β-galactosidase expressed in HEK293A cells.**

HEK293A cells were transfected with β-Gal cDNA, fixed with 4% paraformaldehyde 24 hrs later, permeabilized with methanol, and immunostained with anti-β-Gal antibody (1: 500) and Alexa 555-conjugated rabbit IgG (1/500). Chromosomal DNA was stained with Hoechst 33342. Scale bar, 50 mm. Note that the antibody reacts only transfected cells.



**Fig.4 Titration of antibody reactivity of anti-β-galactosidase antiserum by ELISA**

Plate was coated with 100 ng of β-galactosidase per well and 100 μl of the antiserum at the indicated dilution was added to each well and incubated. After washing, goat anti-rabbit-IgG conjugated with HRP was added as 2<sup>nd</sup> antibody. Color was developed with TMB as substrate.

**References:** This antibody has not been cited in publication.