

# EXPRESSION & PURIFICATION

## LYTAG Protein Expression & Purification

### The new C-LYTAG generation

LYTAG (\*) is a new generation of products for the expression and purification of proteins in *E. coli*. The new system is based on a reduced version of the affinity chromatography purification tag C-LYTAG. LYTAG has a shorter amino acids sequence (136 aa, 15.21 KDa) than C-LYTAG. LYTAG, as well as C-LYTAG, specifically interacts with LYTRAP resin, a simple, efficient and low cost chromatographic support.

The new LYTAG incorporates an alpha helix polypeptidic sequence which acts as a spacing element between LYTAG and the fused protein, reducing the potential steric interference between both regions and facilitating elimination of the tag by enterokinase digestion.

### ADVANTAGES

The new LYTAG is integrated in a new generation of CASCADE™ expression vectors. These new vectors (pALEX2a,b and c) incorporate a mutant *P<sub>m</sub>* promoter with lower basal activity, allowing higher regulation of protein expression.

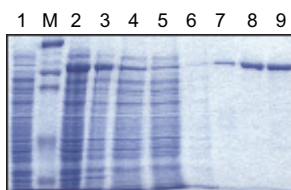
The improvements made on new pALEX2 vectors and the new tag features, increase the solubility of the purified protein.

Moreover, pALEX2 vectors allow to fuse our target polypeptide directly to the cleavage site of enterokinase, making possible to recover the purified protein without undesired amino acids after tag elimination.

#### EXAMPLE: β-GALACTOSIDASE EXPRESSION

Recombinant protein	β-galactosidase
Organism	<i>E. coli</i>
Culture Volume	50 ml
Protein Quantity	6 mg
Purity	>95%
Applications	Research use

SDS-PAGE of β-galactosidase after LYTAG affinity chromatography. The LacZ gene was introduced in pALEX2 plasmid from LYTAG system and expressed in *E. coli*. The recombinant protein was easily purified in one step from induced *E. coli* extracts. (M: marker, 1: total not induced, 2: total induced, 3: induced insoluble fraction, 4: induced soluble fraction, 5: column flow through, 6: wash, 7: elution 1, 8: elution 2, 9: elution 3).



#### Main advantages of LYTAG Purification System

1. Tightly regulated system.
2. One-step purification from crude lysate to >95% recombinant protein.
3. Resin is simple, inexpensive and reusable.
4. **Higher solubility** than with usual competitors systems.
5. **Lower impurities** percentage.
6. Compatible with virtually all common buffers.
7. **Tag easily removed using enterokinase. No undesired amino acids residues after tag elimination.**
8. Purified fusion protein can rebind to the matrix.
9. Elution buffers do not interfere with protein quantitation.
10. No covalent modifications of the proteins is needed for efficient immobilization.

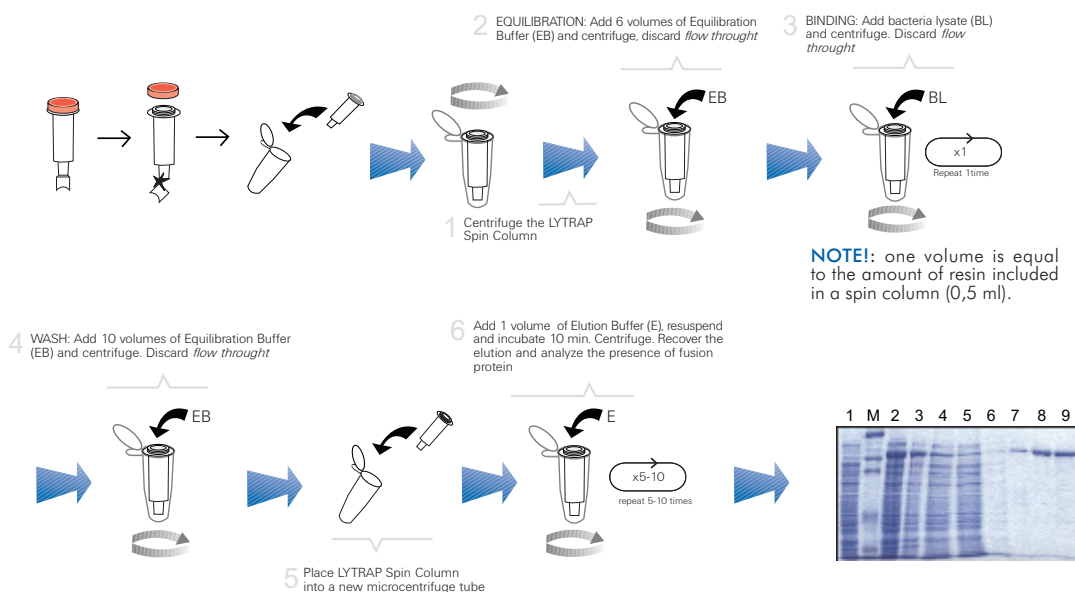
NEW!

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## LYTAG SpinPlus Kit *Purification of LYTAG fusion proteins in minutes*

LYTAG SpinPlus Kit comprises all necessary components for expressing and purifying heterologous proteins in *E. coli*. This product includes solutions, reagents, vectors, antibody, and all the necessary for protein expression and purification, from the transformation of the expression strain, to the analysis of the purified protein.

LYTAG SpinPlus Kit includes 20 mini-spin columns for making possible a fast and easy purification of your protein, as well as PROLYSE, a product especially formulated for the liberation of soluble and active protein, through gentle rupture of the bacterial cell wall. Moreover, for higher purification volumes, Biomedal offers a complete range of complementary products (LYTRAP resin, purification columns, monoclonal and polyclonal antibodies).



### LYTAG SpinPlus Kit

COMPONENTS	FORMAT	CAT. NO.
pALEX2 a,b,c	8 µg (each)	EV-4658
<i>E. coli</i> REG-12	Stab	BS-3458
TSS solution	1.5 ml	RS-3215
Salicylate (1M) (inducer)	25 ml	RS-3247
PROLYSE 1X	25 ml	RS-3399
LYTRAP Spin columns	25 unids	RS-3320
Choline chloride (3M)	20 ml	RS-3245
Anti-LYTAG Antibody	100 µl	AB-3238

### Kits C-LYTAG

C-LYTAG Protein Expression & Purification System	C-LYTAG Purification Kit
pALEX α, b & c	LYTRAP resin
<i>E. coli</i> REG-1	Choline chloride (3M)
Salicylate (1M) (inducer)	Anti-LYTAG Antibody
LYTRAP resin	
Choline chloride (3M)	

### RELATED PRODUCTS LYTAG & C-LYTAG

Product	Format	CAT.NO.
LYTAG SpinPlus Kit <b>NEW!</b>	Kit	KT-4662
C-LYTAG protein expression & purification system	kit	KT-3246
C-LYTAG Purification Kit	kit	KT-3412
pALEXα,b,c	8 µg	EV-3240/41/42
pALEX2-Cα <b>NEW!</b>	8 µg	EV-3435
pALEX2α,b,c <b>NEW!</b>	8 µg	EV-4443/44/45
<i>E. coli</i> REG-1	Stab	BS-3262
<i>E. coli</i> REG-12 <b>NEW!</b>	Stab	BS-3458
Salicylate (1M)	25 ml	RS-3247
PROLYSE (1x)	25 ml	RS-3399
PROLYSE (1x)	100 ml	RS-3406
LYTRAP	30 ml	RS-3302
LYTRAP	250 ml	RS-3316
Choline chloride	20 ml (20X solution)	RS-3245
Anti-LYTAG polyclonal antibody	100 µl	AB-3238
Multibind 96 LYTAG	1 plates	RS-3317
Multibind 96 LYTAG	5 plates	RS-3318
LYTRAP Spin Columns	10 unids.	RS-3319
LYTRAP Spin Columns	25 unids.	RS-3320
LYTRAP Spin Columns	100 unids.	RS-3321
Purification columns (2.5 ml)	1 unit.	RS-3322
Purification columns (2.5 ml)	1 unids.	RS-3396
Purification columns (5 ml)	1 unit.	RS-3414
Purification columns (10 ml)	1 unit.	RS-3415