

## PROBLEM &gt;

Most protein expression vectors add only one copy of one epitope tag to your protein of interest resulting in low signal in your protein characterization experiments. Low signal combined with limited options in tags and tag orientation diminishes your ability to learn more about your protein.

# Enhance Your Ability to Detect, Track, and Characterize Expressed Proteins

## SOLUTION &gt;

Our new pCMV-3Tag Mammalian Protein Expression Vectors<sup>a</sup> fuse three copies of the FLAG<sup>®</sup> or c-Myc epitope tags to your protein of interest. Three tags give you a stronger signal in Western blots, protein localization studies, and immunological assays and enhance your ability to detect, track, and characterize expressed proteins without protein-specific antibodies.

## Stronger Signal

Epitope-tagging technology is a powerful means to functionally analyze your protein of interest without creating an antibody specific to each new protein under study. Our pCMV-3Tag vector series is an advanced epitope tagging system in which three copies of either the FLAG<sup>®</sup> or c-Myc tags are added to your protein (Figure 1). The FLAG and c-Myc tags are small — 8 (DYKDDDDK) and 10 (EQK-LISEEDL) amino acid residues, respectively — highly immunoreactive, do not interfere with the function of your protein (Figure 2), and are easily detected with commercially available antibodies. Three copies of each tag consistently enhance signal strength in all of your

protein characterization studies: protein localization, tracking movement of fusion proteins within the cell, and immunoprecipitation experiments.

## Versatility

There are eight new products available for a variety of cloning and tagging options (Figure 3). Vectors 1-4 confer neomycin/kanamycin resistance to your transfected cells and come in sets of three reading frames for each of the following tagging options:

- N-terminal 3X-FLAG
- C-terminal 3X-FLAG
- N-terminal 3X-c-Myc
- C-terminal 3X-c-Myc

Three reading frames allow the gene of interest to be fused correctly to the epitope tags. A hygromycin vector set (vectors 6-9) for selection of stable transfectants is also available.

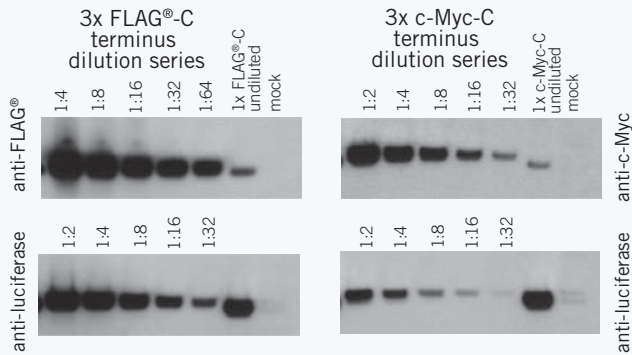
## Maximize Protein Expression Levels

In addition to the epitope tag sequences, the pCMV-3Tag vectors contain features for optimal expression of fusion proteins in mammalian cells. The cytomegalovirus (CMV) promoter allows constitutive expression of the cloned DNA in a wide variety of mammalian cell lines. A Kozak consensus sequence provides optimal expression of the fusion protein when the N-terminal vectors are used. Optimized protein expression levels combined with flexibility in cloning and tagging options make this vector system the method of choice for your protein tagging and characterization studies.

- + Stronger signal in immunological assays
- + Small tags do not interfere with functional analysis studies
- + Three reading frames for both N- and C-terminus tags

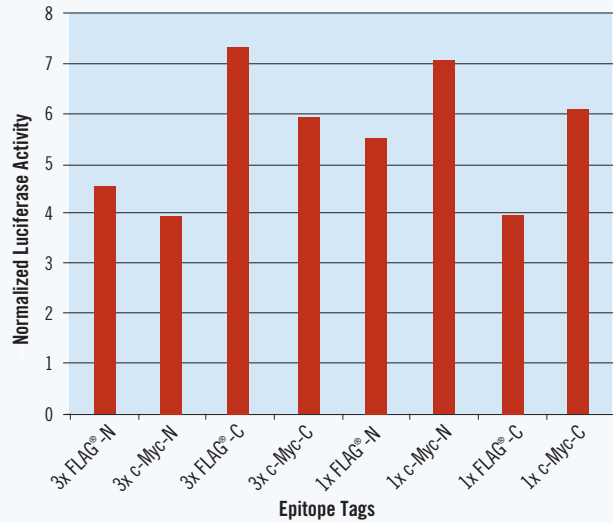
## REFERENCE

a. See license references 1 and 3 on page 1.



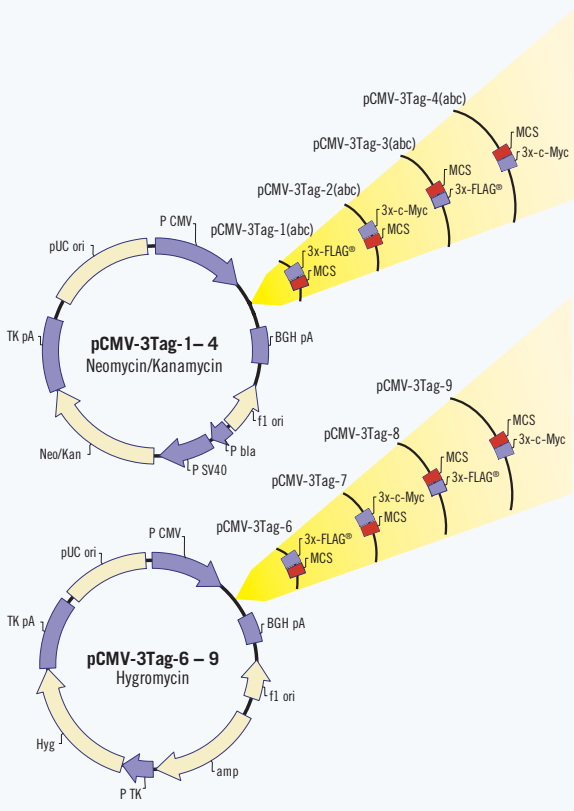
**Figure 1**  
**Stronger Signal for Easier Detection**

Western blot analysis of serial dilutions of the luciferase protein expressed with one or three copies of the FLAG® or c-Myc epitope tags. Triple epitope-tagged proteins are detected with up to 60-fold higher sensitivity than single epitope tagged proteins. Note triple tagged luciferase has a higher molecular weight than single tagged. Similar signal comparisons were seen with N-terminus tags (data not shown).



**Figure 2**  
**Protein Activity Levels**

We compared activity levels of the luciferase protein fused to one and three epitope tags.



**Figure 3**  
**pCMV-3Tag Vector Maps**

Our pCMV-3Tag vector series provides maximum versatility in tagging orientation, multiple reading frames, and antibiotic resistance.

pCMV-3Tag Mammalian Expression Vectors			
	Contents	Catalog	Price
pCMV-3Tag-1 (abc) vectors	20 µg	240195	\$377
pCMV-3Tag-2 (abc) vectors	20 µg	240196	\$377
pCMV-3Tag-3 (abc) vectors	20 µg	240197	\$377
pCMV-3Tag-4 (abc) vectors	20 µg	240198	\$377
pCMV-3Tag-6 vector	20 µg	240200	\$287
pCMV-3Tag-7 vector	20 µg	240202	\$287
pCMV-3Tag-8 vector	20 µg	240203	\$287
pCMV-3Tag-9 vector	20 µg	240204	\$287
Anti-FLAG <sup>®</sup> M2 Antibody	200 µg	200471	\$165
	1 mg	200472	\$278
c-Myc Antibody (Clone 9E10)	25 µg	257260	\$65
	100µg	257261	\$205