

α-Bungarotoxin and Conjugates

Quick Facts

Storage upon receipt:

- ≤−20°C
- Avoid freeze-thaw cycles
- Protect from light

Introduction

α-Bungarotoxin, which is extracted from *Bungarus multicinctus* venom, has been used to stain acetylcholine (ACh) receptors in skeletal muscle,¹ rat myotubules,² the electric organ from *Torpedo californica*,³ and transformed *Escherichia coli*.⁴ Molecular Probes offers unlabeled α-bungarotoxin or α-bungarotoxin labeled with biotin or with a wide selection of fluorophores (Table 1). Fluorescent α-bungarotoxin derivatives are particularly valuable for visualizing the distribution of ACh receptors during neuromuscular junction development.^{5–8} Our bibliography for tetramethylrhodamine α-bungarotoxin (T1175), which is available at our website (probes.invitrogen.com), lists over 100 publications that have used this probe. Our Alexa Fluor® 488 conjugate of α-bungarotoxin (B13422) is the preferred green fluorescent derivative because of its brightness, pH insensitivity and much greater photostability than fluorescein α-bungarotoxin. The far-red fluorescence of our Alexa Fluor® 647 (B35450) or Alexa Fluor® 680 (B35452) conjugates readily permits three and four-color experiments.

Materials

Unlabeled α-bungarotoxin (B1601) is supplied as a lyophilized powder in a unit size of 1 mg. The α-bungarotoxin conjugates are supplied as lyophilized powders from phosphate-buffered saline, pH 7.4 (PBS) in a unit size of 500 μg. The lyophilized products should be stored desiccated at ≤−20°C.

A 1 mg/mL stock solution can be made by reconstituting unlabeled α-bungarotoxin in 1 mL of PBS or the α-bungarotoxin

conjugates in the appropriate volume of distilled water (e.g., 0.5 mL). Store the solution at 2–6°C with the addition of sodium azide to a final concentration of 2 mM. For longer storage, divide the solution into aliquots and freeze at ≤−20°C. When properly stored, these products are stable for several months. **PROTECT FROM LIGHT. AVOID REPEATED FREEZING AND THAWING.**

It is a good practice to centrifuge the peptide conjugate solution briefly in a microcentrifuge before use; only the supernatant should then be added to the experiment. This step will eliminate any peptide aggregates that may have formed in solution, thereby reducing nonspecific background staining.

Properties

The molecular weight of unlabeled α-bungarotoxin is about 8,000. Molecular Probes attaches approximately one fluorophore or one biotin to each α-bungarotoxin, thus retaining optimal binding specificity. The labeled bungarotoxins are then chromatographically separated from unlabeled molecules to ensure maximum labeling of the product. Peak excitation and emission wavelengths for each conjugate are listed in Table 1.

Table 1. Molecular Probes' α-bungarotoxin conjugates.

| Cat # | Conjugate | Ex * | Em * |
|--------|----------------------|------|------|
| B13422 | Alexa Fluor® 488 | 495 | 519 |
| F1176 | Fluorescein | 494 | 518 |
| B7488 | Oregon Green® 514 | 512 | 530 |
| T1175 | Tetramethylrhodamine | 554 | 577 |
| B35451 | Alexa Fluor® 555 | 555 | 565 |
| B13423 | Alexa Fluor® 594 | 590 | 617 |
| B7489 | Texas Red®-X | 593 | 613 |
| B1196 | Biotin-XX | NA | NA |
| B35450 | Alexa Fluor® 647 | 650 | 668 |
| B35452 | Alexa Fluor® 680 | 679 | 702 |

* Approximate fluorescence excitation (Ex) and emission (Em) maxima, in nm. Complete spectra for these dyes are available at our website (probes.invitrogen.com).

References

1. J Neurosci 10, 3947 (1990); 2. J Cell Biol 109, 739 (1989); 3. J Cell Biol 109, 1753 (1989); 4. Proc Natl Acad Sci USA 84, 4318 (1987); 5. J Neurosci 12, 1602 (1992); 6. J Neurosci 12, 1859 (1992); 7. J Neurosci 12, 2982 (1992); 8. J Neurosci 12, 4898 (1992).

Product List Current prices may be obtained from our website or from our Customer Service Department.

| Cat # | Product Name | Unit Size |
|--------|---|-------------|
| B1601 | α -bungarotoxin *from <i>Bungarus multicinctus</i> * | 1 mg |
| B13422 | α -bungarotoxin, Alexa Fluor® 488 conjugate | 500 μ g |
| B35451 | α -bungarotoxin, Alexa Fluor® 555 conjugate | 500 μ g |
| B13423 | α -bungarotoxin, Alexa Fluor® 594 conjugate | 500 μ g |
| B35450 | α -bungarotoxin, Alexa Fluor® 647 conjugate | 500 μ g |
| B35452 | α -bungarotoxin, Alexa Fluor® 680 conjugate | 500 μ g |
| B1196 | α -bungarotoxin, biotin-XX conjugate | 500 μ g |
| B7488 | α -bungarotoxin, Oregon Green® 514 conjugate | 500 μ g |
| F1176 | fluorescein α -bungarotoxin (α -bungarotoxin, fluorescein conjugate) | 500 μ g |
| T1175 | tetramethylrhodamine α -bungarotoxin (α -bungarotoxin, tetramethylrhodamine conjugate) | 500 μ g |

Contact Information

Further information on Molecular Probes products, including product bibliographies, is available from your local distributor or directly from Molecular Probes. Customers in Europe, Africa and the Middle East should contact our office in Paisley, United Kingdom. All others should contact our Technical Service Department in Eugene, Oregon.

Please visit our website—probes.invitrogen.com—for the most up-to-date information.

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