FM 1-43 (N-(3-Triethylammoniumpropyl)-4 -(4-(dibutylamino)styryl pyridinium dibromide) 神经末梢荧光探针

产品编号	产品名称	包装规格
NBS3210-1mg	FM 1-43 (N-(3-Triethylammoniumpropyl)-4 -(4-(dibutylamino)styryl pyridinium dibromide)	1mg

产品简介：

FM 1-43，英文全名：N-(3-Triethylammoniumpropyl)-4-(4-(Dibutylamino) Styryl) Pyridinium Dibromide，是一种亲脂的苯乙烯染料，是一种优秀的膜探针用来鉴定活跃的放电神经元和用于调研活动依赖性的囊泡循环。这一水溶性的染料对细胞无毒，且在水溶液中基本无荧光，一旦插入细胞膜外层后发射强荧光。在活跃释放神经递质的神经元中，FM 1-43 内在化进入循环的突出囊泡，神经末梢被明亮染色。成像检测前只需简单清洗去除非特异性得细胞表面膜染色。

产品特性：

1） CAS NO.：149838-22-2

2） 同义名：Pyridinium, 4-[2-[4-(dibutylamino)phenyl]ethenyl]-1-[3-(triethylammonio)propyl]-, dibromide

3） 分子式：C30H49Br2N3

4） 分子量：611.54

5） 纯度：≥95%（HPLC）

6） 溶解性：溶于水

7） Ex/Em：510/626nm (MeOH); 480/598 (membrane-bound);

保存条件：

-20°C 避光干燥保存，至少 1 年有效。

产品使用：

1. 储存液配制

于实验前，将冻干粉置于室温回温至少 20min，加入无菌水配制成 10mM 或其他浓度储存液，比如，对于 1mgFM 1-43（MW: 611.54）加入 163μl DMSO,充分溶解后即得到 10mM 储存液，根据单次用量分装，≤-20℃冻存，避免反复冻融。

2. 染色方法（仅作参考）

应用示例（来自文献，仅作参考）

FM 1–43 Labeling and Unloading：

① FM 1–43 储存液(1000X):用水溶解 FM1-43 配制 4mM 储存液。按 20μL 每管分装保存在-20℃避光。如果希望标记后固定样本，选择 FM 1–43FX。

② HL-3 + 90 mM KCl 溶液: 25 mM NaCl, 90 mM KCl, 10 mM NaHCO3, 5 mM HEPES, 30 mM sucrose, 5 mM threalose, 10 mM MgCl2, pH to 7.2.新鲜制备，超过 2d 后不可使用，4℃保存。加入 CaCl2（1M 标准液）以得到终浓度为 1.5mM 的 CaCl2（或希望使用的其他浓度)。

③ 使用 KCl 刺激法用 FM1-43 标记突触小泡(Labeling of Synaptic Vesicles with FM 1–43 Using KCl Stimulation)：

◇FM 1–43 标记液: Add 1 μL FM 1–43 stock solution to 1 mL HL-3 plus 90 mM KCl solution with calcium (final concentration of FM 1–43 is 4 μM).

◇Incubate the dissected larva in FM 1–43 labeling solution by replacing the HL-3 solution without calcium. Do not add the solution on top of the larva but gently pipet the solution on the side of the larva. Start a timer; once you add the labeling solution, exocytosis and endocytosis are induced, and FM 1–43 labeling ensues. The incubation time will depend on your experiment, but a 1-min incubation leads to robust labeling in wild-type animals). Since some mutants are temperature sensitive, it may be necessary to perform experiments at high temperature (see Note 2 if this is the case).

◇Following stimulation, remove FM 1–43 labeling solution and wash five times over a total of 5–10 min with a generous amount of HL-3 solution without calcium to stop stimulating and to remove dye not internalized. Do not add the solution on top of the larva but gently pipet the solution on the side of the larva to avoid muscle damage. Gently perfuse the wash solution by pipeting up

and down.

◇Image labeled vesicles on a confocal microscope with an ×40 water immersion lens and quantify intensity of labeling as described in Subheading 3.5.

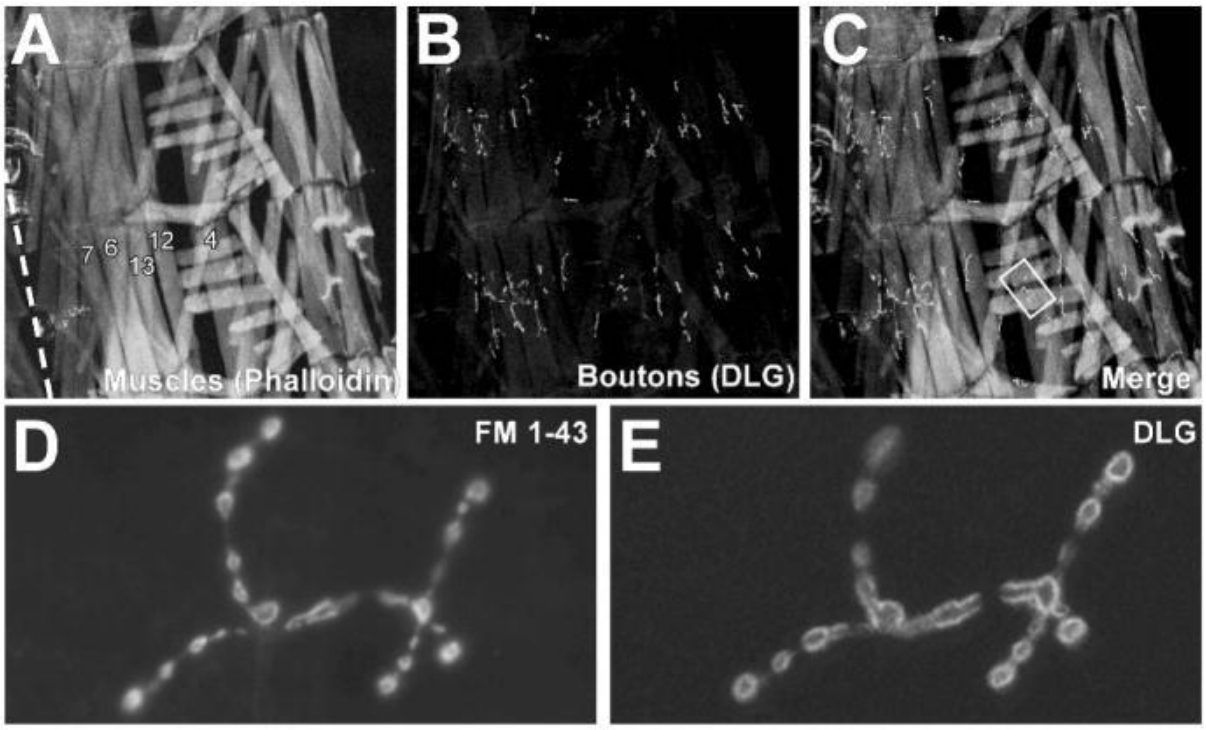

Fig. FM 1–43 labeling of a third-instar larval fillet. (A)–(E) Third instar larval fillet incubated for 1 min in HL-3 with 4 μM FM 1–43, 90 mM KCl, and 1.5 mM calcium, washed, and the FM 1–43 imaged (D). The same preparation was then briefly fixed with 3.7% formaldehyde and labeled with mouse anti-DLG antibodies (28; 4F3 monoclonal antibody; Developmental Studies Hybridoma bank) used at 1:50 (B), (C), and (E) to reveal synaptic boutons at the NMJs and Alexa 635-conjugated phalloidin (Invitrogen cat. no. A34054) used at 0.001 unit/μL (A) and (C) to reveal muscles. (A)–(C) two hemisegments labeled with phalloidin (A) and DLG (B), merged in (C). The dashed line in (A) shows the ventral midline, and muscles commonly used in the genetic analysis of synaptic function are marked. (D) FM 1–43 labeling (before fixation of the preparation) of the NMJ in the boxed area on muscle 4 shown in (C). (E) The same synapse as shown in (D), labeled with DLG (see B) following fixation of the preparation.

注意事项：

1. 荧光染料都存在淬灭的问题，保存和操作过程中注意避光。
2. 苯乙烯染料在水溶液中基本无荧光，最大发射波长具 pH 依赖性。苯乙烯染料的光谱特征在甲醇或氯仿中测定。其在膜环境中的最大激发和最大发射波长都会变短。最大激发波长的差异通常在 20nm，发射波长的差异通常是 80nm，但依具体的探针有所差异。

3. FM®是 Molecular Probe 公司的注册商标。
4. 为了您的安全和健康，请穿实验服并戴一次性手套操作。

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相关产品：

产品编号	产品名称	包装规格
NBS3210-1mg	FM 1-43 膜电位荧光探针	1mg
NBS3211-1mg	FM 2-10 膜电位荧光探针	1mg
NBS3212-100ug	FM 4-64 膜电位荧光探针	100ug
NBS3213-100ug	FM 4-64FX 膜电位荧光探针	100ug
NBS3214-5mg	RH 237 膜电位荧光探针	5mg
NBS3215-5mg	RH 421 膜电位荧光探针	5mg
NBS3216-5mg	RH 414 膜电位荧光探针	5mg
NBS3217-1mg	RH 795 膜电位荧光探针	1mg