

ANT8B

NOVaptamer to Kanamycin

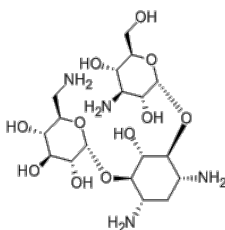
Target Information

Kanamycin

Kanamycin is an aminoglycoside antibiotic primarily used to treat bacterial infections, particularly those caused by Gram-negative bacteria. It works by binding to the bacterial 30S ribosomal subunit, disrupting protein synthesis and causing bacterial cell death.

Molecular formula: $C_{18}H_{36}N_4O_{11}$

Molecular weight: 484.5 g/mol



NOVaptamer ANT8B

Chemistry: DNA

Size: 79 nt

Molecular weight: 25042.4 g/mol

Molar extinction coefficient: $788000 \text{ Lmol}^{-1}\text{cm}^{-1}$

Binding buffer: 20 mM HEPES, 20 mM CH_3COONa , 140 mM CH_3COOK , 3 mM $(\text{CH}_3\text{COO})_2\text{Mg}$, pH 7.4

A truncated version of this aptamer, 52 nt long, is available (see ANT8B-T1).

Folding an aptamer into its tertiary structure is essential for optimal target binding. To achieve this, resuspend the aptamer in assay buffer, heat to 95°C (~2 minutes), then allow to cool to room temperature (~5 minutes) before use.

Affinity Determination

Affinity Determination Method: Fluorescence

Apparent K_D in the binding buffer: $11\mu\text{M}$

Specificity:

- does not cross react with: streptomycin, neomycin, gentamycin.

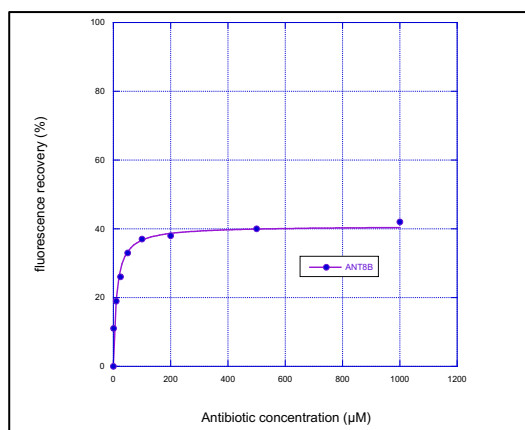


Figure 1. Dose-response fluorescence recovery in the bimolecular beacon assay upon kanamycin addition.

Key advantages offered by aptamers over other affinity reagents, notably antibodies

✓	High affinity and selectivity
✓	Thermostable, long shelf life
✓	Animal- and cell-free selection
✓	Chemical synthesis
✓	Batch to batch reproducibility

Custom synthesis

- **Available at different scales** – upon request, up to 100 nanomoles
- **Various purification modes** – adapted to specific experimental requests
- **Extensive conjugation options for diverse applications:**
 - Grafting: NH₂, SH, biotin, etc.
 - Sensing: fluorescent dyes, nanoparticles, redox groups
 - Cross-linking: click chemistry reagents
- **Molecular beacons** - possible hybridization with a complementary oligonucleotide to form a bimolecular beacon, enabling quantitative detection

Applications (For Research Use Only)

- Biosensing
- Detection of kanamycin in dairy products by fluorescence

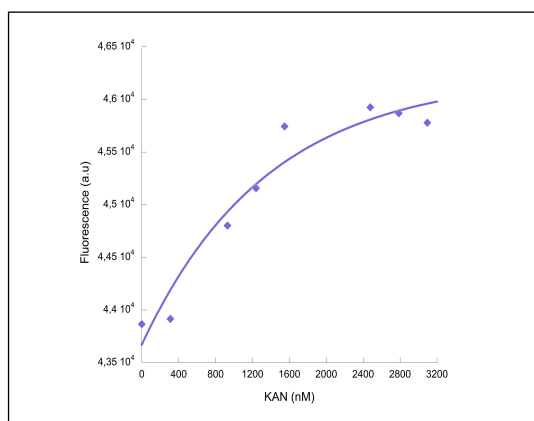


Figure 2. Detection of kanamycin in milk - fluorescence intensity increases upon binding of the aptamer to kanamycin in milk, enabling detection of low antibiotic concentrations.

Contact information

For more information or inquiries, please contact:

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