

BEN6-T4

NOVaptamer to Carbendazim

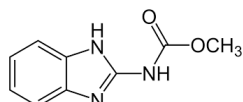
Target Information

Carbendazim

Carbendazim (CBZ) is a broad-spectrum benzimidazole fungicide, used to control a wide range of fungal pathogens in agriculture. It acts by interfering with microtubule formation, thereby inhibiting fungal cell division. Due to its persistence and potential health risks, monitoring CBZ residues is essential to ensure compliance with food safety regulations.

Molecular formula: C₉H₉N₃O₂

Molecular weight: 191.2 g/mol



NOVaptamer BEN6-T4

Chemistry: DNA

Size: 40 nt

Molecular weight: 12348 g/mol

Molar extinction coefficient: 383900 l.mol⁻¹.cm⁻¹

Binding buffer: 20 mM HEPES, 20 mM CH₃COONa, 140 mM CH₃COOK, 3 mM (CH₃COO)₂Mg, pH 7.4

A full-length version of this aptamer, 82 nt long, is available (see BEN6).

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: 197 µM

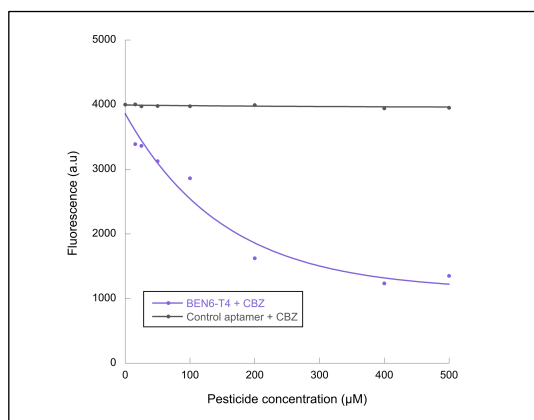


Figure 1. Target-induced displacement of a fluorescent dye by the aptamer.

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
- Environmental monitoring (e.g., water/soil contamination)
- Food safety and agricultural monitoring (e.g., fungicide residue testing)

Contact information

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