

## AFA5B

## NOVApptamer to Neurofilament Light Chain (NfL)

### Target Information

#### Neurofilament light chain

Neurofilament light chain (NfL) is a protein found in neurons, particularly in their axons, and is part of the neurofilament protein family. NfL helps maintain the structural integrity of neurons. Elevated levels of NfL in blood or cerebrospinal fluid are used as a marker for neurodegenerative diseases and neurological injuries, reflecting neuronal damage and disease progression. For aptamer selection, a recombinant His-tagged protein was used.

### NOVApptamer AFA5B

**Chemistry:** DNA

**Size:** 80 nt

**Molecular weight:** 25002.2 g/mol

**Molar extinction coefficient:** 764200 Lmol<sup>-1</sup>cm<sup>-1</sup>

**Binding buffer:** PBS, 3 mM (CH<sub>3</sub>COO)<sub>2</sub>Mg, pH 7.4

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.

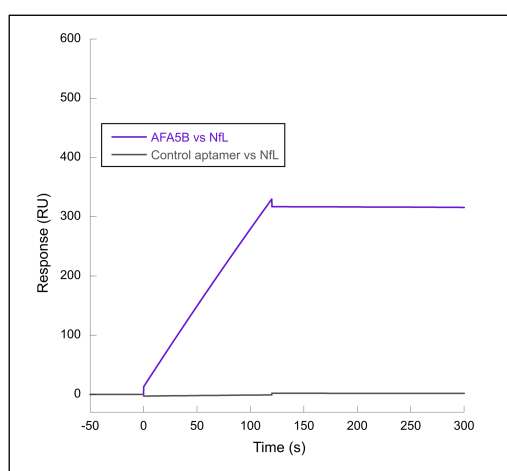
### Affinity Determination

**Affinity Determination Method:** Surface Plasmon Resonance (SPR)

**K<sub>D</sub> in the binding buffer:** <50 nM

**Specificity:**

- Cross reacts with Glial Fibrillary Acidic Protein (GFAP) with the similar affinity



**Figure 1.** Fitted SPR sensorgram showing the binding of NfL to the immobilized aptamer AFA5B and the control aptamer in a single-concentration analysis (80 nM). The assay was performed in the binding buffer at 24°C.

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

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

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## Custom synthesis

- **Available at different scales** – upon request, up to 100 nanomoles
- **Various purification modes** – adapted to specific experimental uses
- **Extensive conjugation options for diverse applications:**
  - Grafting: NH<sub>2</sub>, SH, biotin, etc.
  - Sensing: fluorescent dyes, redox groups
  - Cross-linking: other functional groups for click chemistry
- **Molecular beacons** - possible hybridization with a complementary oligonucleotide to form a bimolecular beacon, enabling quantitative detection

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## Applications (For Research Use Only)

- Biosensing
- Probe for NfL protein, modifications with fluorophores, redox groups and functional groups allow integration into various types of assays

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## More information

For more information or inquiries, please contact:

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