# Neuraminidase NOVAptamer Data Sheet

AMI10A-T2

## NOVAptamer to Neuraminidase from Avian Influenza A Virus

## Target Information

**Neuraminidase**

Neuraminidase (N) is a glycoprotein found on the surface of influenza viruses, including both avian and human strains. It plays a critical role in the viral replication cycle by cleaving sialic acid residues from host cell surfaces, facilitating the release of new viral particles. This protein undergoes frequent mutations, contributing to the emergence of new viral strains. It is also a major target of antibodies, playing a key role in the immune response and vaccine development. For aptamer selection, a recombinant His-tagged protein from Avian Influenza A virus, subtype H5N1 [A/Thailand/1(KAN-1)/2004(H5N1)], was used.

## Novaptamer AMI10A-T2

**Chemistry:** DNA
**Size:** 18 nt
**Molecular weight:** 6230.3 g/mol
**Molar extinction coefficient:** 180200 $Lmol^{-1}cm^{-1}$
**Binding buffer:** 20 mM HEPES, 20 mM $CH_3COONa$, 140 mM $CH_3COOK$, 3 mM $(CH_3COO)_2Mg$, pH 7.4, 0.005 mg/mL salmon sperm DNA
(*To minimize non-specific binding (NSB) of neuraminidase, salmon sperm DNA was incorporated into the binding buffer. Alternatively, yeast tRNA can be used as an effective blocking agent to achieve comparable results.)*

*The full-length version of this aptamer, 88 nt long, is available (see AMI10A).*

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)
**$K_D$ in the binding buffer:** <20 nM
**Specificity:**
Cross reacts with: Hemagglutinin H1 from avian IV

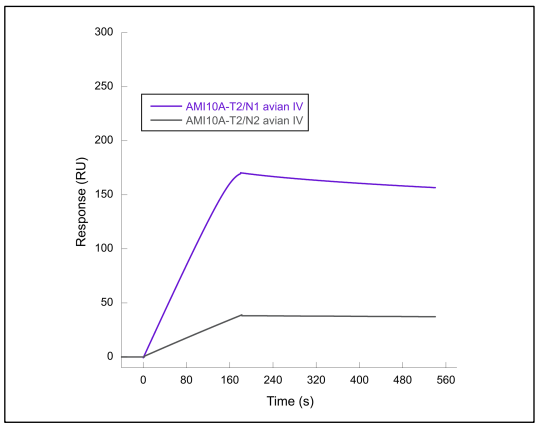


***Figure 1**. Fitted SPR sensorgram showing the binding of proteins N1 and H1 from avian IV virus to the immobilized aptamer in a single-concentration analysis (20 nM). The assay was performed in the binding buffer at 24°C.*

## 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: $NH_2$, 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)

- Biosensors for quick and sensitive influenza virus detection
- Lateral flow assays
- Therapeutics and vaccine development

## Contact information

For more information or inquiries, please contact:

NOVAPTECH
2 avenue Favard, 33170 Gradignan, France
https://novaptech.com ♦ contact@novaptech.com ♦ +33 (0) 5 47 74 26 85