

# Synthetic molecules with antibody-like properties

## Invention

Traditional monoclonal antibodies are limited by their large size often limits tissue penetration and increases manufacturing complexity. This technology introduces smaller alpha-helix self-assembled proteomimetics (ASAPs) that use peptide nucleic acid (PNA) linking moieties for reversible binding. The two helices are connected through a hinge region and have specific PNA sequences that enable hybridization, guiding the assembly into a stable, active conformation. This design enhances the ability of the molecules to target and bind specific proteins, such as the HER2 receptor in cancer cells and the receptor-binding domain (RBD) of SARS-CoV-2. The reversible nature of binding allows for on-demand deactivation, functioning akin to allosteric control in natural proteins.

## Features & Benefits

- **Reversible Binding:** Allows for control over the binding activity, which can be adjusted by disrupting the PNA hybridization.
- **Enhanced Tissue Penetration:** Smaller size compared to traditional antibodies enables better access to target tissues.
- **Versatility:** Effective for targeting a range of proteins, including HER2 (a key cancer biomarker) and viral proteins such as SARS-CoV-2's spike.
- **Synthetic Production:** Facilitates easier and more cost-effective manufacturing compared to conventional monoclonal antibodies.
- **Simple conjugation chemistry:** Ideal for conjugation with radioisotopes or fluorophores

## Intellectual Property

Patent: Antibody-like Binding Molecules & Uses Thereof

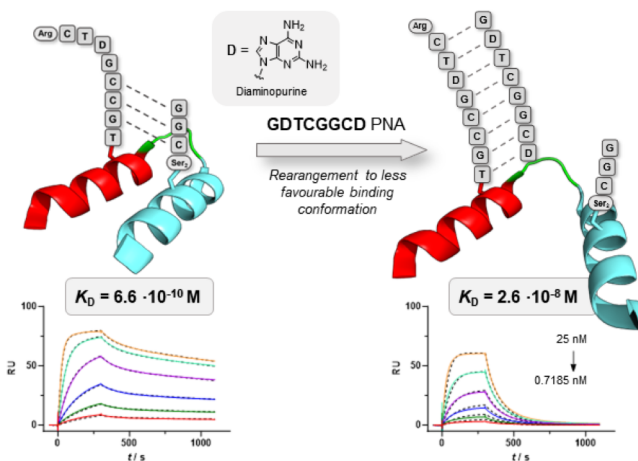
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## Technology Readiness Level

The technology has been validated *in vitro* using binding affinity measurements and virus entry inhibition assays.

## Key data



## Applications

- **Cancer Therapy:** Particularly effective for HER2-positive breast cancer and other HER2-overexpressing cancers like gastric and ovarian cancers.
- **Antiviral Treatments:** Targets viral proteins, including the SARS-CoV-2 spike protein, which could inhibit viral entry into host cells.
- **Diagnostic Tools:** Can be used in biosensors and imaging agents due to their small size and specificity.
- **Drug Delivery Systems:** Reversible binding capabilities make these agents suitable for controlled drug release applications.

## Partnership sought

Exclusive licensing and R&D collaboration  
Support for start-up creation

## Contact & Inquiries

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