TCA
Analytomix Presentation
Sep 29, 2021

We thank TCA for giving us the opportunity to present our projects. We are hoping to gain your interest and confidence and achieve your valuable support.

Thank you

Analytomix Team

Our mission

To devise smart molecules for diagnostic tests and state of the art cancer treatment

The toxicity problem in cancer treatment

- Chemotherapy drugs are highly effective but very toxic to normal cells.
- Therapeutic antibodies mainly target tumor cells while being less toxic to normal cells, but not as effective.
- Therapeutic regiments including both antibodies and Chemos are currently administered to patients → problem of toxicity is not solved.

Analytomix

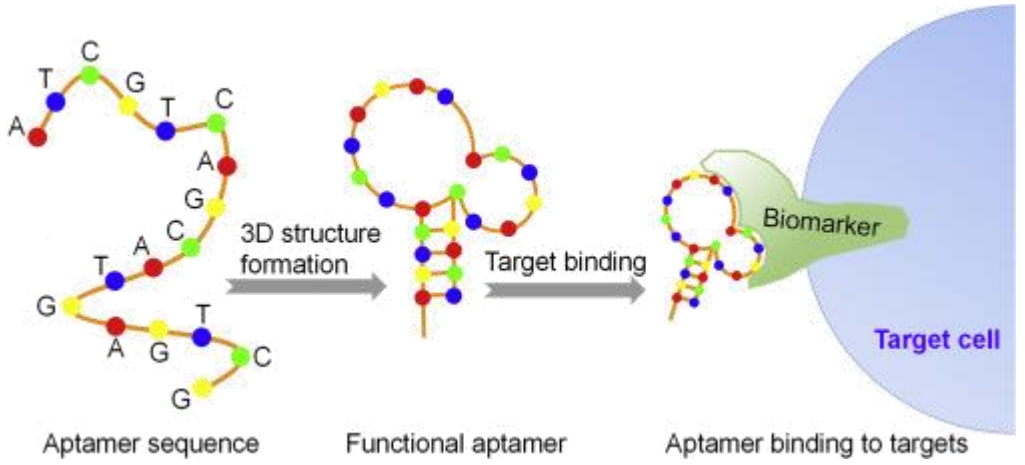
smart molecules for healing

How to address the problem

- Our objective is to use therapeutic antibodies as the carriers for the chemos to target them directly to the tumor cells and avoiding toxicity to normal cells.
- Our approach is to use switchable linking molecules (Aptamers) connecting antibodies and chemos.

Aptamer

- A short single strand RNA or DNA (usually 20 – 60 bases) folded on itself to make a three dimensional structure.
- An aptamer can be developed and designed to bind to a target with high affinity and specificity



https://www.cell.com/molecular-therapy-family/nucleic-acids/fulltext/S2162-2531(18)30239-7

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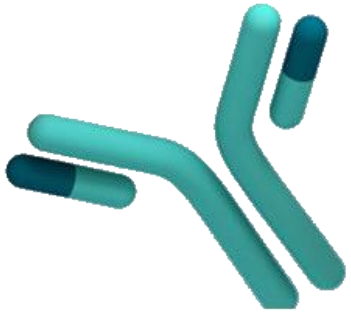
Main Idea

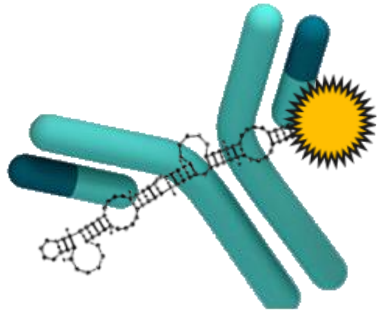
- Developing aptamers that specifically bind to therapeutic antibodies
- Modifying aptamers by linking drugs or inclusion of drugs into them
- Delivering the linked drugs to the targeted tumor cells via the Ab-Aptamer complex

Drug linked aptamers targeted to antibodies

Taxol, Doxorubicin,…
Immunogens or toxins



Therapeutic antibodies:
Atezolizumab
Herceptin, …

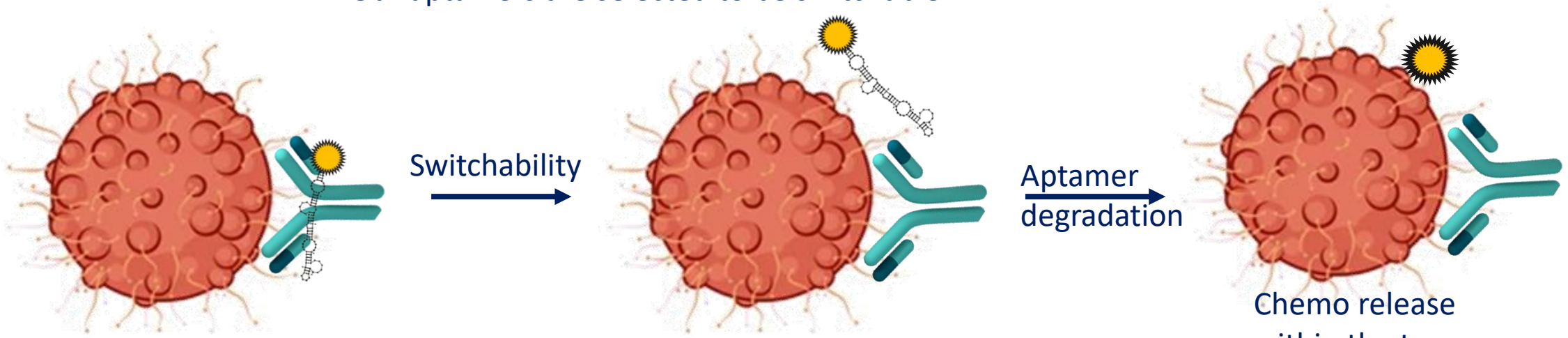


Ab-Aptamer-Drug complex

Switchability of Our Aptamers

The Key concept in our technology

- **Switchability of aptamer:** Detachment of aptamer from the carrier antibody upon binding of the Ab to its target cell.
- In a clinical setting, switchability means:
  - Aptamer-Chemo complex is carried to the tumor by the antibody
  - Release of aptamer from the therapeutic Ab within the tumor microenvironment upon binding of the Ab to its target cell
  - Degradation of released aptamer within the tumor resulting in the release of drugs from the aptamer
- Switchability allows targeting of tumor cells with the chemo and avoiding the toxic side effects in other tissues.
- Our aptamers are selected to be switchable.



Analytomix current achieved milestones

- We have developed aptamers, TecApta and HerApta, specific to therapeutic antibodies Atezolizumab and Herceptin, respectively.
- These aptamers are highly sensitive and specific to their target antibodies.
- These aptamers are switchable, releasing from their targets upon binding of antibodies to their target proteins.
- We have developed Gemcitabine (a chemo drug) and TLR9A (immuno-activator) linked forms of TecApta and HerApta.
- We are planning to test these modified aptamers in cell-based assays and in animal studies.

- (An appendix including the supporting data is available at the end of the presentation.)

The targeted market/patient population

- Cancer patients that are treated with tumor targeting antibodies and immune checkpoint blockers.

Analytomix Management Team

- Mohammad Atefi, PhD (matefi@analytomix.com)
  - Molecular biologist with extensive background in cancer research, directly trained by Dr. Dennis Slamon and Dr. Antoni Ribas
  - Patents: # 20110118138, and # 8329417
  - Selected recent publications:
    - Cancer Cell. 2018 May 14;33(5):890-904.e5.
    - Cancer Res. 2017 Mar 15;77(6):1383-1394.
    - Clin Cancer Res. 2014 Jul 1;20(13):3446-57.
    - Nature. 2011 Nov 23;480(7377):387-90.

- Carlos Pereira (guto@gpspar.com.br)
  - Electronic engineer; Senior Software Developer; founder and former partner of a successful Brazilian technology company that offered services for the mobile industry
  - Trained in Information Processing and Machine Learning
  - Pre-Med and Sciences Certificate from UCLA Extension

We appreciate your attention to our presented slides, and we are looking forward to your valuable insights, feedbacks and hopefully your support.

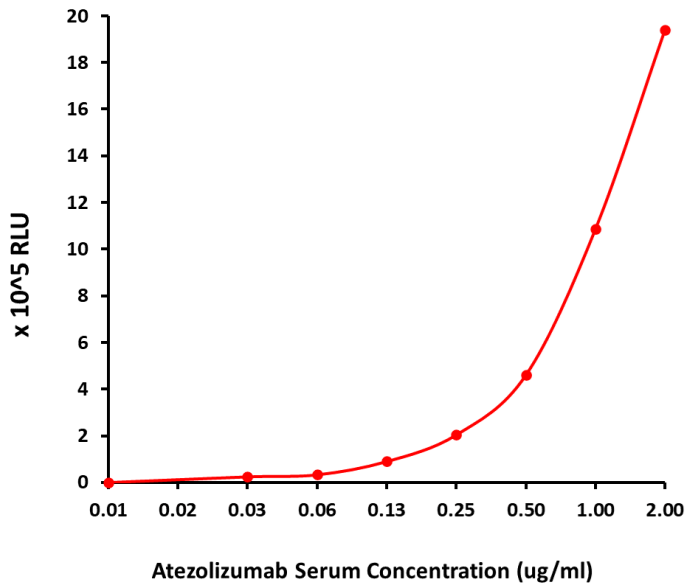
Thank You!

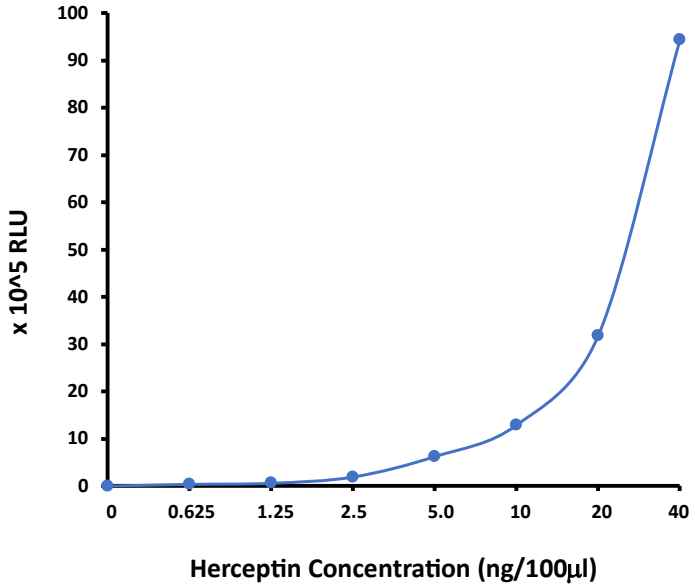
Analytomix Team

Appendix: Supporting Data

In case, if you would be interested, the following slides include supporting data for our current scientific achievement.

High sensitivity of aptamers for binding to their target antibodies



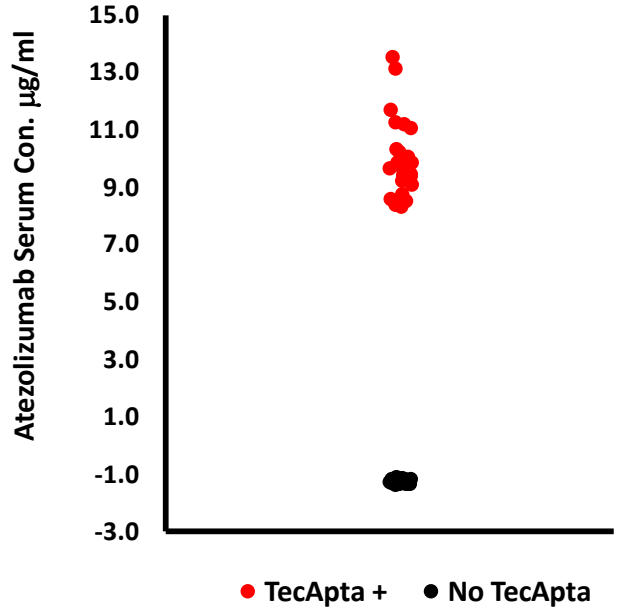


- TecApta and HerApta aptamers were used to develop Atezolizumab and Herceptin detection methods, respectively.

Binding Aspects of TecApta for Atezolizumab

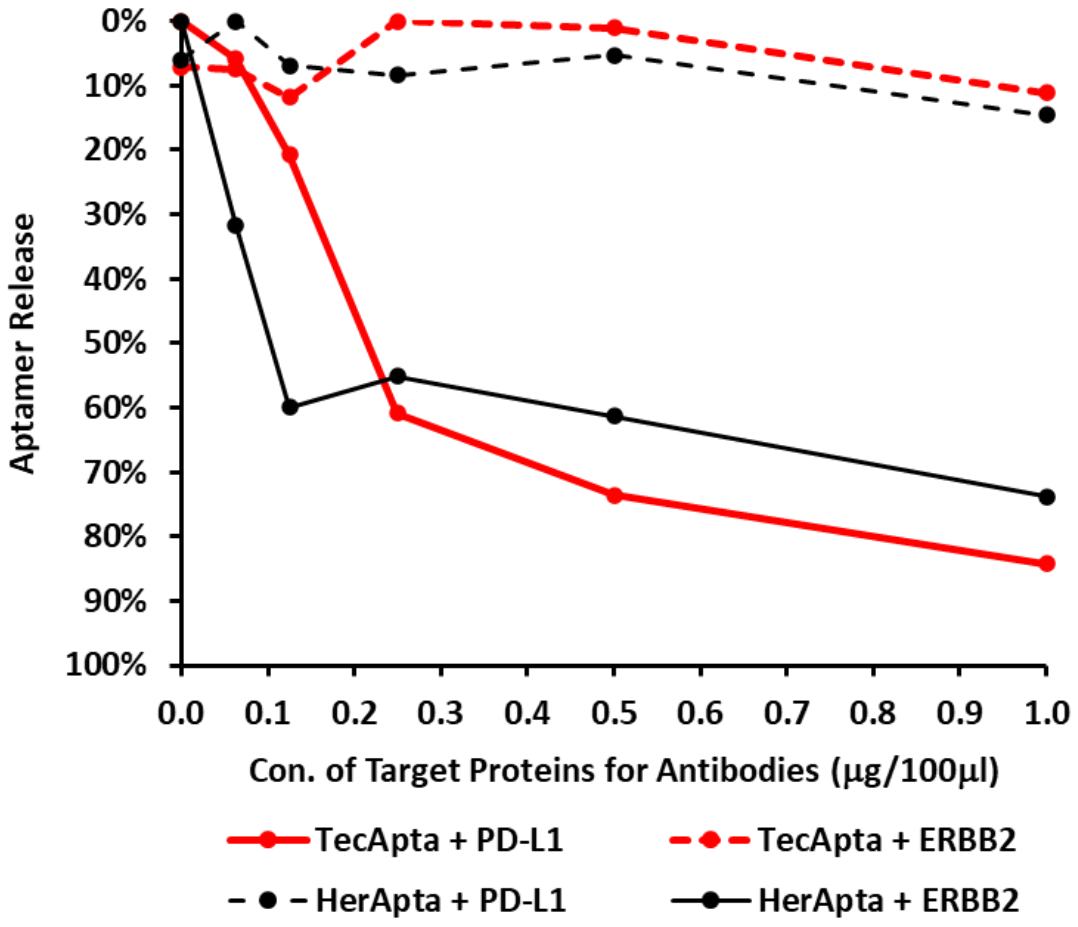
Name	Concentration	CxR %
Atezolizumab	2ug/ml	100%
Traztuzumab	40ug/ml	0%
Pembrolizumab	40ug/ml	0%
Human IgE	40ug/ml	0%

- TecApta has no cross-reactivity with up to 20-fold higher concentration of other therapeutic antibodies.



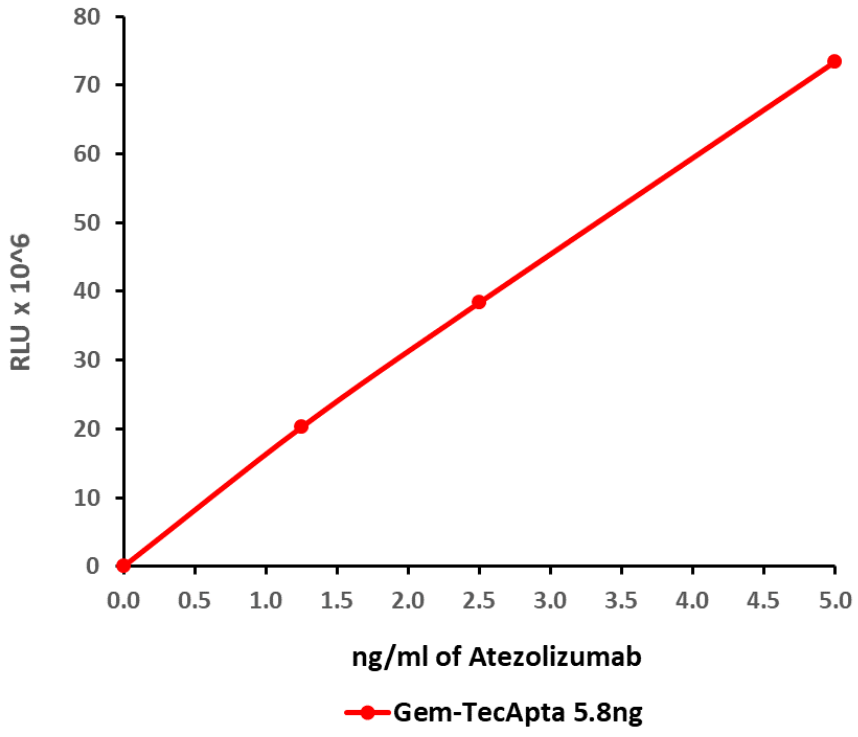
Detection of Atezolizumab in serum samples by TecApta aptamer

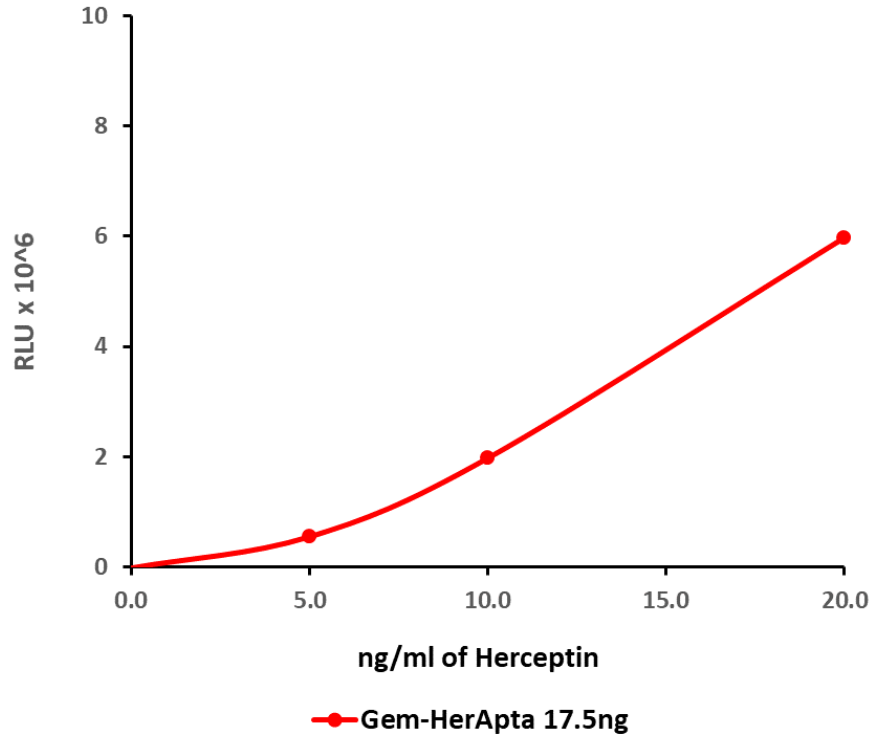
Switchability of TecApta & HerApta aptamers



- Release of TecApta and HerApta from Atezolizumab and Herceptin, respectively, upon binding of each antibody to its target and not vice versa.
- Indicating the possibility of *in vivo* aptamer release upon binding of the Ab to the target protein on the tumor cells.
- The released aptamer in the tumor can deliver a conjugated toxic compound to the tumor.

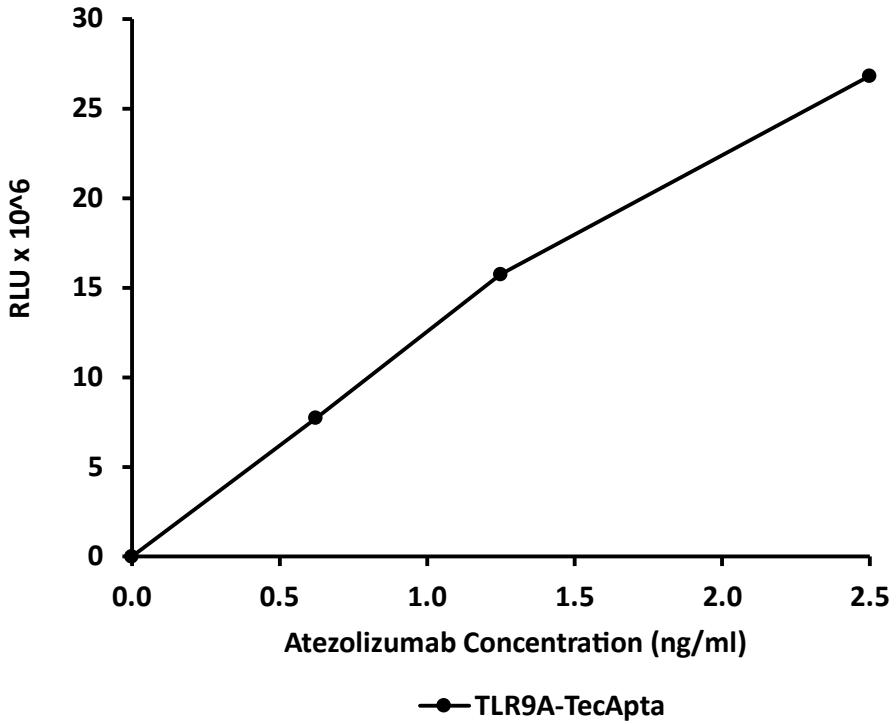
Developing chemotherapy linked TecApta & HerApta

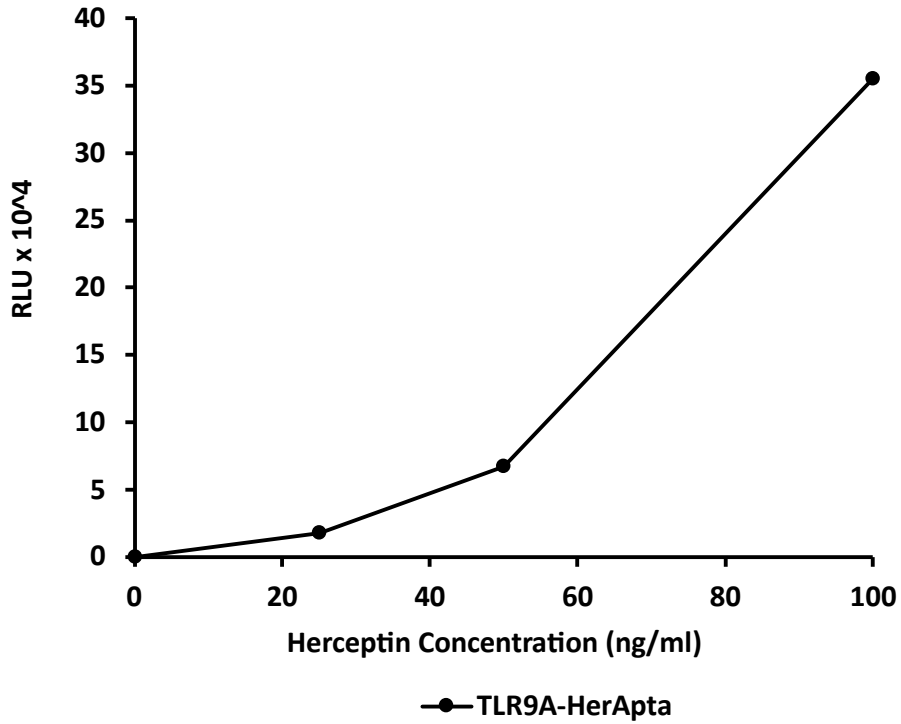




- Gemcitabine linked aptamers are under development at Analytomix and their binding to their target antibodies are being tested.
- Gemcitabine linked TecApta (Gem-TecApta) and HerApta (Gem-HerApta) can bind to their corresponding target antibodies, Atezolizumab and Herceptin.

Developing immunogen linked TecApta & HerApta





- TLR9A linked aptamers are under development at Analytomix and their binding to their target antibodies are being tested.
- TLR9A linked TecApta (TLR9A-TecApta) and HerApta (TLR9A-HerApta) can bind to their corresponding target antibodies, Atezolizumab and Herceptin.