



APTAGEN LLC  
250 North Main Street  
Jacobus, PA 17407

717-278-2436

www.aptagen.com

## **FAQs (Frequently Asked Questions):**

**Why Aptagen?** We Guarantee our Services. No final payment until benchmarks and milestones are met. Aptagen has over 25 years of experience and a number of testimonials attributing to our exceptional customer service and quality for success. We have the highest success rate in the industry, >80% for small molecule targets and >90% for large protein and cell targets. We are known for “...*taking on Challenging Projects where others have failed, and Delivering Positive Results.*” Several former clients did go another route with disappointing results and ended up spending more capital to get the job done right by us. Ask for our References/Testimonials.

Our business model is straightforward and simple: You pay us to do the work, you own 100% of the aptamers we develop for you. No royalties. No negotiations needed. You will own exclusive rights to all the aptamer sequences we discover against your target, and you'll have the freedom to file for patent rights to those aptamers.

**What chemistries can be used for aptamer discovery (i.e. Deluxe chemistries)?** In addition to ssDNA, RNA, 2'F-RNA, and 2'OMe-RNA (under special circumstances), Aptagen can use alternative chemistries such as peptimers™ (peptide aptamers), aptabodies™ (next-gen aptamers), and HMAs (see below). Inquire for pricing.

**Can you discover Unknown or Unique biomarkers using aptamers?** Yes. Aptamers can be developed to respond to a set of positive patient samples over negative patient samples (both determined by clinical means). These aptamers will then be used in a pull-down assay followed by mass-spec analysis to identify the biomarker(s) of interest. Contact Us for more details.

**Can Aptagen source my target samples and matrix material for me to start a project?** We prefer the Client provide the materials for Aptagen, i.e. drop-ship to our laboratory facility. However, *for an additional convenience fee, Aptagen can source the project materials.* It is highly recommended that counter-target(s) is also provided for enrichment of highly specific aptamers. A Material Acquisition Form must be completed for background information on the target, any associated hazards, and handling requirements.

**How much target and counter-target are needed to start a project?** At least 10 nanomoles (e.g. 1 ml of 100  $\mu$ M solution), 1 mg of solid material, or  $1 \times 10^8$  cells. Client would need to provide at least 10-15 mL of any custom matrix or selection buffer.

**Purity of sample target?** The target sample may be crude in purity; however, an equivalent crude sample without the presence of the target is needed to perform a counter-selection before positive selection. These consecutive strategy steps effectively subtracts the influence of other endogenous components in the sample milieu and enriches for apta-sensor(s) against only the target in the crude sample specifically.

**My target is hydrophobic; any special considerations to be aware of?** Aptagen has experience with hydrophobic targets using traditional chemistries. However, in certain circumstances, Aptagen would recommend using Hydrophobically-Modified Aptamers (HMAs), a unique set of proprietary nucleotides that enhance binding to hydrophobic epitopes.



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**Affinity ( $K_d$ ) vs. Limit of Detection (LOD)?** Low affinity (i.e. high  $K_d$ ) is not necessarily an issue for many downstream applications. Although high-affinity aptamers serve as better starting points for assay development, low to moderate affinity aptamers may exhibit high sensitivity in a particular platform. As a rule of thumb for many platforms, LOD is typically 1 to 2 orders of magnitude lower than the  $K_d$ . Contact us for details.

**Can Aptagen synthesize additional material at larger scales of manufacturing?** Aptagen has established close relationships with Original Equipment Manufacturers (OEMs). For all R&D customer projects, Aptagen can facilitate arrangements for the production of milligram- to gram-scale deliverables of aptamers.

**Sandwich-based vs. Split-Aptamers?** Sandwich aptamers are aptamer pairs that bind to different epitopes on the same target. They individually have the ability to bind to the target in question, and can be used independently from each other. A split aptamer is generated from an aptamer that binds to a single epitope on a given target. The aptamer is divided into 2 segments such that the aptamer re-assembles in the proximity of the target epitope.

**Apta-beacons™ vs. Apta-switches?** Apta-beacons™ are aptamers that produce an output signal for detection of analytes free in solution (either fluorescent or colorimetric output). They exhibit low limits of detection and can be easily implemented in a 96-well plate assay with No Capturing, No Washing, Just READ™. Multistep approaches like ELISA always requires optimization and is time consuming. The single-step apta-beacon approach does not require optimization and is fast. Apta-switches are aptamers with a structural and/or catalytic response to aptamers, but do not incorporate a readable output signal. Contact Us for more details.

**Are there Discounts for multiple projects?** For multiple projects initiated simultaneously, a 10% discount will be applied per additional target.

**Are there any Academic or Additional Discounts?** Yes, an additional 10% discount is available under the following conditions: 1) Royalty Agreement and/or Client and Aptagen share Joint IP, and 2) Aptagen has the right to publish the research in a peer-reviewed journal with Client as co-authors.

**What are the pros and cons of Package Deals versus A la carte projects?** Package Deals offer discounted pricing and more rapid progression between project Phases for slightly higher risk – the Customer is committing to the agreed upon number of Phases from the project start. A la carte project Phases give the Client ‘go/no-go’ decision points throughout the project, but this adds the separate decision-making and invoicing/payment processing times to the overall project progression. Because each Phase is separately executed, there is no Package discount.

**Can Aptagen honor a payment plan?** Aptagen is flexible to Client R&D needs. Each phase is at the Client's discretion whether Aptagen performs the work or is performed by another provider. Executing the ‘a la carte’ pricing for each phase allows a Client to implement ‘go/no-go’ decision points throughout the project. This is the payment plan we will honor; however, note that the total combined cost of all phases is greater than the listed Package Rates (refer to table on the first page).



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**Are there additional ways to save costs to meet budget constraints?** For a 25% discount, a mixture of antigens may be considered as one target, and therefore, substantially discounted from the cost of multiple targets in parallel projects (i.e. 'pooled-split' strategy). During later rounds of library enrichment, the pool is split to sort through and identify target-specific binders which will result in additional cost and development time in Phase V (Validation). However, the cost of sorting through validation (or characterization) is nominal compared to the significant savings gained from pooling the targets in Phase I for screening.

If budget is still a concern, we can collaborate on a grant application for funding or provide technical consultation under the Do-It-Yourself (DIY) option (see below). *Alternatively, a reduced quote may be issued in exchange for royalty payment terms.* Contact Us for details.

**Does Aptagen offer a Do-It-Yourself (DIY) option and Consultation Services?** If Client desires to perform the research and development work themselves in whole or in part, Aptagen is able to provide consultation services at rate of \$500/hr. Email and phone support included. To initiate Aptagen's mentoring relationship during the course of DIY, an upfront \$5,000 non-refundable deposit is required.