



BillionToOne has developed molecular tools that improve the resolution of cell-free DNA diagnostics by over 1000x. These molecular tools unlock a wide range of applications from noninvasive prenatal testing to quantitative liquid biopsy applications for cancer.

Challenge

BillionToOne invented a novel way to do prenatal screening but needed to ensure that its IP did not infringe on others as it approached its Series A fundraising round. Additionally, the company was worried about the cost and speed that traditional firms could provide to the seed stage startup.

Outcome

Cognition IP was able to draft a provisional patent and freedom-to-operate opinion within weeks that demonstrated the uniqueness of the company's methods to investors, accelerating due diligence and giving the company the basis to raise \$17.5M in funding. At the same time, Cognition IP's services were faster and more cost-effective than traditional firms, which was very important to BillionToOne.

Introduction

BillionToOne's mission has always been to impact human health in the biggest way it can. The company's first product measures cell-free DNA more accurately for prenatal screening, which is accessible to as many mothers as possible under basic health insurance in the United States.

The test can detect inherited diseases like Cystic Fibrosis, Sickle Cell Diseases, Spinal Muscular Atrophy or Alpha and Beta Thalassemia and achieve higher resolution by using machine learning in innovative ways to remove noise from their biological test. This novel interdisciplinary approach is typical of the founding team's background. CEO Dr. Oguzhan Atay explains, *"Our breakthrough needed the same person to have deep expertise in multiple areas. For instance, upon exiting Princeton, I had offers for multiple Ph.D. paths: MIT for Physics, Cambridge for Applied Math, and Stanford for Biology. My co-founder, David Tsao, was a spacecraft engineer, a physicist, a software engineer, and a bioengineering Ph.D. We used ideas from different disciplines to solve problems in biology. We were able to deliver a massive phase*

shift improvement, one thousand times the previous diagnostic resolution."

Dr. Atay led BillionToOne through Y Combinator in 2018 and raised a total of \$17.5M from venture capital funds who previously invested in companies like SpaceX, Box, Palantir, and biotech companies, such as Counsyl and Omada Health. Dr. Atay received his Ph.D. from Stanford, where his work was published in highly regarded peer-reviewed journals, including on the cover of Cell Systems.

As a funding round approached, the company needed to establish the novelty of its method

As BillionToOne was preparing for its Series A, the founders knew that investors would dig in deep on the novelty of their technology and want to know if it would infringe upon the IP of other prenatal diagnostics companies - which was a key risk factor for the company. Cognition IP helped ensure BillionToOne had freedom to operate (FTO) and prepared a freedom-to-operate opinion that BillionToOne used in the fundraising diligence for their Series A.

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Dr. Oguzhan Atay
- Co-Founder and CEO, BillionToOne

“Cognition IP was able to perform the freedom to operate much more cost-effectively by using best-in-class technology and processes to find and analyze the prior art.”

Based on Cognition IP’s FTO opinion, investors were satisfied that BillionToOne would be able to go to market without infringing patents. The second challenge they faced was filing a provisional patent application that further expanded its previous patent portfolio. They wanted to file a provisional patent application cost-effectively and in a matter of weeks to be ready for Series A financing. *“Cognition IP did high-quality work at a very cost-effective price when BillionToOne was still at seed stage and funds were tight. The work of Cognition IP was instrumental in accelerating the Series A due diligence where the FTO opinion was used by investors. Thanks to Cognition IP’s FTO, the Series A fundraising and due diligence was completed within a few weeks. Cognition IP also got our provisional application filed very quickly, which further expanded BillionToOne’s portfolio and established a wide range of applications of our technology platform,”* explains Dr. Atay.

Cognition IP’s cost-effectiveness and speed of work made the firm stand out against traditional options, which can be critical for life sciences companies going to market before a fundraise. *“Freedom to operate can be very expensive to obtain with a traditional firm, but it is critical to have a high-quality FTO prior to starting a Series A process. Cognition IP was able to perform the freedom to operate much more cost-effectively by using best-in-class technology and processes to find and analyze the prior art. As we expand our IP portfolio, we highly recommend their services to others,”* says Dr. Atay.