

T1D FUND ANALYST REPORT 2024

This report provides a comprehensive review of the T1D Fund (Fund). It provides both a financial assessment, including investments and exits, and addresses the Fund's impact on progressing a T1D cure.

The Fund was established in 2016 as a registered 501(c)(3). It is an independently managed subsidiary of Breakthrough T1D. The Fund's initial capital was raised by donations from high-net-worth individuals and large organizations (a list of donors can be found in Appendix A). These donations are tax-deductible. Since the Fund is financed with charitable donations, donors forgo any right to share in the Fund's profits and forfeit their right to reclaim their initial capital.

Since its inception, the Fund says it has \$175 million under management and has invested about \$90 million in various funding rounds of thirty-one private businesses. At the end of FY23, the Fund held \$70 million in investments. There have been eight exits for the Fund, with seven of these acquired by Big Pharma. Three of the companies have been closed or liquidated.

The Fund is remarkable in several ways. From a financial perspective, it is quite successful, with a solid balance sheet benefiting from profitable exits and strong fundraising. It is one of the first and most successful venture philanthropy funds, serving as a best practice. The Fund is fully focused on commercial-stage companies, which have an inherent urgency to go to market as soon as possible. On occasion, it has served as an investment leader, giving confidence to traditional venture Capitals to invest in T1D companies, though that has become less evident in recent years. Lastly, it has indeed participated in companies at the forefront of T1D research, although the number of investments is still quite small, and the pace of investments has declined materially in recent years despite a large and ready pool of capital. Yet, a Functional Cure remains elusive, and it is unclear whether the Fund is more committed to engineering profitable exits via 'safe' investments versus taking the bold moves needed to unlock a cure.

THE FUND'S MISSION

The Fund's stated mission is fully focused on T1D. Specifically, the mission is stated, "To accelerate life-changing solutions to cure, prevent and treat type 1 diabetes (T1D) through equity investments."

A focus on early-stage investments, where the Fund's imprimatur would signal viability to traditional investors, is a key value. Later stage companies, which are more developed and have a track record, benefit much less from Breakthrough T1D's involvement. In the later stage, the Fund is just another investment, not a beacon.

The analysis in this paper shows that, to date, the Fund has generally delivered against the mission, but with some notable exceptions. Investments in later years have shifted from early-stage to later stage, which may be driven by fewer viable early-stage opportunities or a tonal shift to find 'safer' investments.

THE FUND'S INVESTMENTS: STAGES AND ROUNDS

The Fund has invested in both early and late-stage companies. Roughly 60% of its investments are in early-stage companies, including both 'Seed' and 'A Round' investments. The remaining 40% are in later-stage companies (see table 1). In addition, the Fund has invested more than once in eleven different companies—nine companies for two rounds and two companies for three rounds (see table 2).

Table 1: *The Fund's Investments by Round*

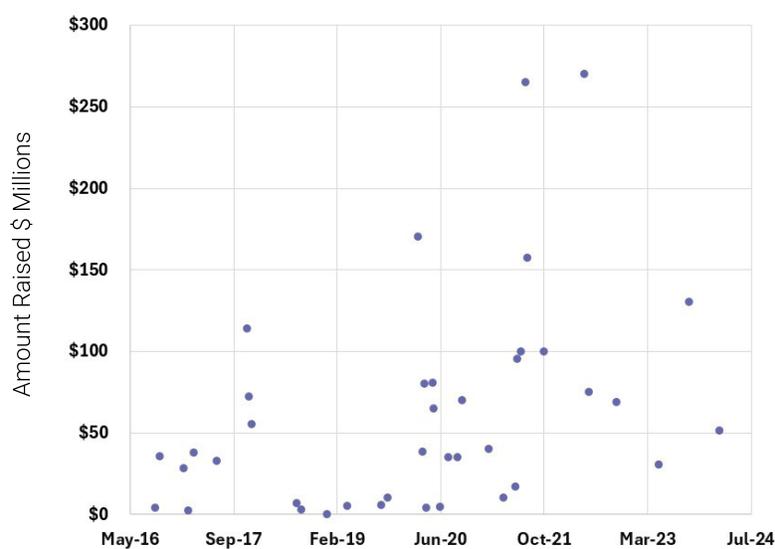
Round of Funding	No. of Investments
Seed	8
A	16
B	9
C	6
D	1
Unknown	4
Total	44

Table 2: *Number of Investment Rounds the Fund Participated in Per Company*

	No. of Companies
One Round	20
Two Rounds	9
Three Rounds	2
Total	31

The Fund has invested in rounds ranging in size from \$2 million to \$270 million (see figure 1). These investment rounds have raised, in total, about \$3 billion. This is a considerable number and a good thing for T1D. However, many of these companies are also researching other diseases. **Only nine of the thirty-one companies the Fund has invested in are fully or primarily focused on T1D.**

Figure 1: Total Amount Raised by Company in Each of the Fund's Fundraising Rounds



FINANCIAL OPERATIONS AND PERFORMANCE

The Fund takes an ownership stake in the companies that it invests alongside other investors by acquiring preferred stock. In some instances, the firm is an active investor, taking on board seats and providing connections to the broader Breakthrough T1D research network. In other instances, the firm is a more passive investor, one among many.

As of June 30, 2023, the last fiscal year publicly available, the Fund held \$70 million in investments, with \$63 million in preferred stock and an additional \$7 million in convertible loans (see table 3). Although the Fund does not make public its own financial statements, some details about the Fund's investments can be found in the parent organization's financial statements. Recorded as 'Programmatic Investments,' one can determine the cost basis of most of the Fund's investments.

The Fund is a disregarded tax entity of Breakthrough T1D, operating as a related but independent institution. It is a 501(c)(3) and raises capital by soliciting donations and proceeds from profitable exits. As a venture philanthropy fund, it is not required nor expected to share profits and/or return principal with donors. It reports its annual financials through the Breakthrough T1D parent. Of note, the firm's two managing partners were among the top five highest-paid executives of the Breakthrough T1D overall (source: JDRF IRS 990s).

Table 3: Fund Holding and Exits by Year (\$ Millions)

	2018	2019	2020	2021	2022	2023
Preferred Stock	\$23	\$34	\$93	\$63	\$51	\$70
Proceeds from Sales/Exits	\$0	\$3	\$13	\$29	\$38	\$7
Total Value	\$23	\$37	\$106	\$92	\$89	\$77

EXITS: WINNERS AND LOSERS

The Fund has had eleven exits. Eight were profitable; three were closed or liquidated.

From an investment standpoint alone, with eight profitable exits out of thirty-one total investments, the Fund is quite successful. One common benchmark of venture capital-backed companies is that they return capital to investors varying between 8% to 25%. The Fund has returned capital on 26% of its investments. The Fund has earned \$90 million net from these exits. A summary of the companies that were profitable exits is in table 4.

Table 4: Exits

Company	Invest Date(s)	Exit Date	Acquire Price (\$B)	Acquirer	Product
	2016 2017	Sept 2023	N/A	 Abbott	Pump/Pens
	2018	Mar 2023	N/A	 TANDEM DIABETES CARE	Infusion set developer
	2018 2020 2022	Sept 2023	N/A	 novo nordisk	DKA reduction Glucose control
	2018 2020	Feb 2021	\$1.9	 MERCK	Localized immune suppression
	2020	July 2021	N/A	 Lilly	Target dosing delivery of peptides and proteins
	2017	Mar 2023	\$2.9	 sanofi	Tzield
	2016 2017	Sept 2019	\$1.0	 VERTEX	sBC producer
	2017	Sept 2021	N/A	 AbCellera	Complex proteins expertise for glucose management

On the other hand, the Fund lost money from three investments. Two ceased operation and the other was liquidated, its assets acquired at book value. A summary of companies that failed is in table 5.

Table 5: Closures/Liquidations

Company	Invest Date(s)	Comments
 Implantable Glucose Sensor	2017	Closed
 DOMINANCE IN IMMUNOTHERAPY	2018	Closed
	2017 2020	Liquidated—Assets sold to Stemcell Technologies in Feb 2024. Received \$137 million in venture funding before dissolution.

A HUGE CASH BUILD UP

At the conclusion of 2023, the Fund held a massive cash treasure chest of about \$100 million that has yet to be deployed. We estimate that about half is due to profitable exit proceeds and about half is remaining funds from a successful 3rd round of fundraising conducted during COVID. This huge coffer of available capital enables the firm to move quickly with new investments, although there have only been three investments since January of 2023, totalling \$20 million in FY23.

THE MOST IMPORTANT ISSUE: IMPACT ON A T1D CURE

Ultimately, the reason the Fund exists is to achieve a cure for T1D. As a venture philanthropy fund, it has a fiduciary and moral obligation to ensure that profit is subservient to achieving a T1D cure. In this section, we ask: **What progress has the Fund made toward a T1D cure?**

We will address two key questions by reviewing its investments:

- ◆ How many of the Fund's investments are committed to achieving a T1D Cure?
- ◆ How do the Fund's investments compare to Breakthrough T1D parent grants?

How many of the Fund's investments are committed to achieving a T1D Cure?

Overall, the Fund is quite focused on T1D, and many of its investments to date are addressing at least some aspects of a potential T1D cure. Among the thirty-one investments the Fund has made since inception, half tackle at least one component of a Practical Cure. Among the twenty investments currently active at publication, thirteen are tackling at least one aspect of a cure and five are in human trials (see table 6).

Table 6: Current Fund Investments by Type and Progress

	Functional Cure Potential (Full or Partial)	Not Cure Related
Clinical Trials (testing in humans)	  	 
Pre-Clinical or Earlier (testing in animals or in vitro)	         	    

Functional Cure Potential investments address what might later become a full solution for people living with the disease—either stopping the autoimmune attack or substituting the body’s ability to produce insulin. The research pathways include gene editing, stem cell-derived beta cells, immune system modulation, cell therapies, and nano-particle cell protection.

More than half of the current portfolio of companies is heavily focused on T1D. Ten companies are highly focused, where T1D is the number one or secondary priority. Five companies are partially focused, where T1D is a lower priority, while the remaining five do not prioritize T1D or, in some cases, have suspended their T1D program. Since 2021, five companies have decreased their T1D focus while three have increased. At least one company—i2o Therapeutics—shifted its focus entirely to T2D (see table 7).

It is also worth looking at the exit companies. Two of the eight continue to move toward a T1D cure. Semma Therapeutics is now part of Vertex, which also acquired ViaCyte, and they currently have four active cure projects in human trials utilizing embryonic stem cells. Pandion, acquired by Merck, is working toward localized immune suppression that may provide cell protection from an autoimmune attack. This work remains promising.

Table 7: Active Fund Investments (at publication)

Company	Total Capital Raised (Millions)	Primary Research Focus	T1D Cure Progress Benchmarks			
			T1D Focus Level	Cure Research Pathway	More or Less T1D Focus since 2021	Stage
Abata Therapeutics	\$95	Focus: Multiple Sclerosis Onset Delay Cell Therapies	Medium	✓	≡	Discovery
AnToIRX	\$4	Focus: T1D "Nano-formulations" Licensed to Pfizer	High	✓	≡	Pre-Clinical
Biolinq	\$15	Focus: T1D Needle-free CGM	High	✗	≡	Pre-Clinical
Code Biotherapeutics	\$10	Focus: Muscular Dystrophy Gene Therapy / Cell Regeneration	Low	✓	↓	Pre-Clinical
Diasome Pharmaceuticals	\$54	Focus: T1D Insulin effectiveness	High	✗	≡	Human (P2)
DioGenX	\$5	Focus: Diabetes General Biologics / Cell Regeneration	High	✓	↑	Pre-Clinical
eGenesis Bio	\$265	Focus: Diabetes General Xeno-islet transplantation	Medium	✓	≡	Pre-Clinical
Enthera Pharmaceuticals	\$39	Focus: T1D IGFB for immunomodulation	High	✓	≡	Pre-Clinical
GentiBio	\$177	Focus: T1D Treg for immunomodulation	High	✓	≡	Pre-Clinical
i2o Therapeutics	\$5	Focus: T2D Oral biologics for glucose	Low	✗	↓	Discovery
Immunocore	\$669	Focus: Cancer T-cell tech for autoimmune Active T1D program	Medium	✓	↑	Pre-Clinical
IM Therapeutics	\$10	Focus: Celiac and T1D Drugs targeting HLA Unwinding / Limited activity	Low	✓	↓	Human (P1)
Jaguar Gene Therapy	Unknown	Focus: Genetic Diseases PAX4 gene for cell supply	Low	✓	N/A	Discovery
Kriya Therapeutics	\$81	Focus: T2D Gene editing to enhance glucose control	Medium	✗	↓	Pre-Clinical
Repertoire Immune Medicines	\$257	Focus: Cancer Tool to analyze T cells	Low	✗	≡	Discovery
SAb Biotherapeutics	\$130	Focus: T1D Slow disease progression Tzield competitor	High	✗	N/A	Pre-Clinical
Seraxis	\$40	Focus: T1D Lab-grown stem cells	High	✓	≡	Pre-Clinical
Sonoma Biotherapeutics	\$70	Focus: Autoimmune and Inflammatory Diseases Cell therapies to stop autoimmune attack	Medium	✓	↓	Human (IND)
Veralox Therapeutics	\$22	Focus: Thrombosis T1D is second priority Small molecule therapies	High	✓	↑	Human (IND)
vTv Therapeutics	\$51	Focus: T1D Oral to reduce hypos	High	✗	N/A	Human (P2)

How do the Fund’s investments compare to the Breakthrough T1D parent’s grant-making in terms of cure progress?

Although the T1D Fund has spent much less on investments than its Breakthrough T1D parent has spent on grants, it is materially more focused on the T1D cure research pathway. Since 2016, Breakthrough T1D has given out \$669 million in research grants while, during the same time frame, the Fund has invested \$90 million (see table 8). Breakthrough T1D has funded approximately 1,100 grants in that time while the Fund has invested in only thirty-one companies.

However, the Fund is more committed to cure research. A full 40% of its current and active investment portfolios are researching some aspects of a potential Practical Cure, compared to 21% of Breakthrough T1D grants (see table 9). Three of the Fund’s cure pathway portfolio investments are currently in or starting human trials. If we add Fund alumnus Semma (Vertex), the number of active human trials seeking a Practical Cure jumps to six.

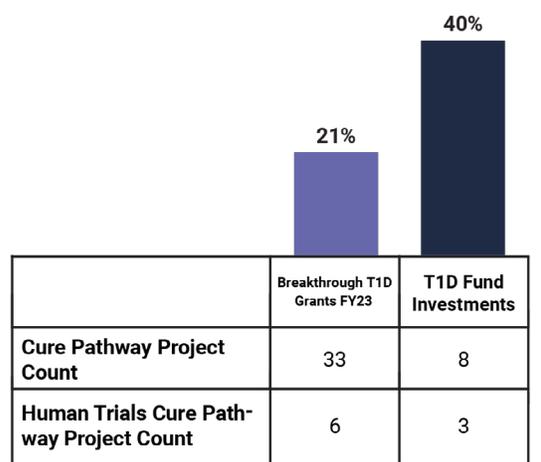
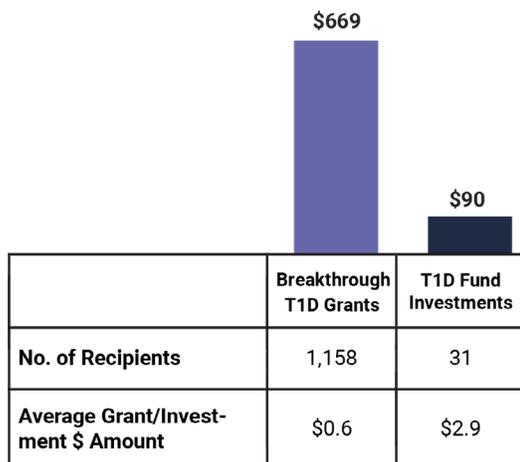
The Fund also makes significantly larger investments than Breakthrough T1D gives in grants. The average dollar amount per investment made by the Fund is \$2.9 million compared to \$600,000 per Breakthrough T1D grant. The larger amount is consistent with typical venture capital funding, and the manageable portfolio size allows the Fund to actively support its investees.

Table 8: Breakthrough T1D versus Fund Comparison: Dollars and Grants/Investments

Table 9: Breakthrough T1D versus Fund Comparison: Current and Active Cure Pathway Projects

Cumulative Dollars Allocated for Grants/Investments since 2016 (Millions)*

Cure Pathway Projects as % of Total Grants/Investments



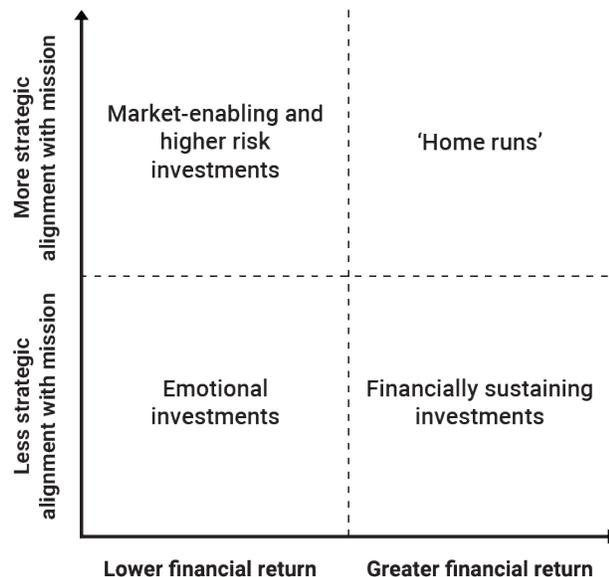
OUTLOOK: CHALLENGES AND OPPORTUNITIES

Since its inception in 2016, the Fund has grown to be an important part of T1D research. It is often held as a venture philanthropy success story that many others seek to emulate. The Fund has certainly attracted traditional investment capital to T1D that would have gone someplace else, and, with its heightened reputation, is likely to continue to do so for years ahead. The Fund has over-indexed projects that could be ingredients to a Practical Cure, and, because its investments are commercial entities, there is urgency to get a product to market that is not always present with academic research. Overall, this is great for T1D.

The Fund has celebrated its profitable exits with gusto. Breakthrough T1D leaders pointed to these as major wins not just for the Fund but for Breakthrough T1D overall. We agree that these are indeed investment wins that should add muscle to T1D research. However, a real win will also materially move us closer to a cure and should put a product into market, not just the sale of one research company to another. While we are excited about Vertex's work with the Semma stem cell line, it is still a long way from being market-ready. Tzield, the product produced by past Fund investment Provention Bio and acquired by Sanofi, is positioned as the 'game-changer' that is now available in market. While this is a remarkable intervention for those who are not yet diagnosed, it does not benefit people who have fully established T1D.

Moreover, the Fund has had limited investment activity over the past several years while carrying a record-setting treasure chest of available cash. What will it do with the money? Why has it not been spent? It is possible the quality of investments that both adhere to the mission and offer low-risk financial returns is limited? One of the pitfalls of profitable exits is that it sets the expectation for future profitable exits. We hope that the Fund does not begin to shoot only for 'Home Runs' (see figure 2).

Figure 2: *Financial Return vs. Mission Alignment*



Source: "Differentiated Dollars: Building your startup with venture philanthropy investment," *Bioentrepreneur*, March 17, 2022, Daniel Alvarez and Andrew Lo.

PRIMARY SOURCES

JDRF Audited Financial Statements for fiscal years 2017; 2018; 2019; 2020; 2021; 2022; 2023

'JDRF' rebranded to 'Breakthrough T1D' on June 4, 2024. All financial statements cited within this report were filed before this date and are still listed under the former name 'JDRF'

The Breakthrough T1D financials are presented on a consolidated basis, which includes Breakthrough T1D and the Fund. The Breakthrough T1D Fiscal Year runs from July 1st to June 30. All documents are publicly available.

"JDRF T1D Fund Introduction March 2021"

A PowerPoint presentation produced in Spring of 2021 by the Fund to solicit donations. The document contains several key data points which were used to confirm investment amounts.

SEC EDGAR Database

Catalogs all investment filings in the U.S. for major transactions, including mergers and acquisitions. Used in this report to review exit transactions when/if they were made available.

Breakthrough T1D and T1D Fund Websites

An excellent source of general information, documents, and investment activity.

Corporate Press Releases

Press releases were reviewed from all investment companies of the Fund. Most major investments, acquisitions, mergers, and research breakthrough activities are conveyed accordingly.

Financial Analyst Reports

Reports are prepared by major investment firms and cover big pharmaceutical activities.

Crunchbase

The Crunchbase database contains detailed information for all rounds of funding a company has raised including the amount raised and the identities of other investors.

APPENDIX A: T1D FUND DONORS

Breakthrough T1D Fund Donors as of March 1, 2021			
JDRF	3 Anonymous Donors	Helmsley Charitable Trust	Daryl and David Nelms
\$35,000,000	\$10,000,000	\$7,000,000	\$3,000,000
		\$2,000,000	
Karen and Jeff Jordan		Anne-Marie and Paul Queally	
\$1,000,000+			
Susan and Grant Beard	Suzy and Sean Doherty	Ellen and Eason Leake	Nancy and Frank Sellendorff
John Cammett	Family of Merrill Eastman	Sharon and Greg Maffei	Emily Spitzer
Edward A. Chernoff	Ashley and Mike Fisher	Heather and John Mozart	Thomas D. and Denise R. Stem
Tara and Tim Clark	Cynthia and Edsel Ford	Lisa and Jack Reed	
Meredith and Fielding Cocke	Stacey and David Johnson	The Ted and Meredith Segal Foundation	
\$500,000+			
Abbrecht Family Gift Fund	Family of Robert Edwards	Emily Nielsen Jones and Ross Jones	The Amy and Alan Meltzer Family Foundation
Lisa and Steve Altman	Ronne and Alan Fisher	Joanne Kagle	Theresa and Mike Murphy
Cathy and Rick Baier	Lisa and Ted Gardner	Robin and Brian Kelly	Karen and Joe Niehaus
Cynthia and Evan Beane	Lauren and Marty Geller	Amy Kiefer and Marius Enksen	The Bob and Renee Parsons Foundation
Geoff Beattie	Barbara and Frederick Goldberg	Liz and Charles Komar	Nancy and Dale Pollak
Mike Boyle	Becky and J. Brett Gordon	Sara and Andy Kurtzig	Amy Raskin and Joel Saferstein
Mary Lou and Stewart Bruce	Stephen and Deborah Gordon	Joyce and John Lancaster	Fantasy and Donald Reynolds
Kim and Bill Chisholm	Michelle Griffin and Tom Parker	Debi and John Lashar	J.O. Robbins Family
Lau & Bea Christensen Charitable Foundation	Janice Gross and Steve Klar	Kate and Gregg Lemkau	Holly and David Sherr
Cummings Christensen Family Foundation	Erin and Tom Hoffman	Tracy and John Malloy	Kay and Don Thorp
Lisa and Rhyne Davis	Family of Lillian "Lil" Jordan Hyder	Tammy and Ron Malone	Lisa and Neil Wallack
Yvette and Eric Edidin	Bonnie and Terry Jackson	Carolyn and Patrick McNamara	Eileen and Ronald Weiser
Pam and Franklin Edmonds	Trudy and John Jacobson	Joann and Harald McPike	Jenny and Duston Williams