

JDRF T1D Fund Analyst Report

A thorough review of the performance and impact on a T1D Cure of JDRF's venture philanthropy fund

This analyst report provides a comprehensive review of the JDRF T1D Fund. It provides both a financial assessment, including investments and exits, and addresses the impact the Fund has made to date on progressing a T1D cure.

The JDRF T1D Fund was established in 2016. It is a registered 501(c)(3) which uses donor capital to invest in early-stage companies with T1D commercial potential.

Since inception, the Fund has invested \$79 million in various funding rounds of 27 private businesses. The Fund has raised capital by accepting donations from private individuals and trusts (a list of donors can be found on page 9). These donations are tax deductible. Since the Fund is financed with charitable donations, donors forgo any right to share in the Fund profits and forfeit their right to reclaim their initial capital.

There have been six exits for the Fund as three companies have had initial public offerings and three have been acquired. From a financial perspective, the Fund's best performing investment to date was in Pandion Therapeutics, which generated a \$21 million profit on an investment of \$4 million.

The Fund’s Investment Portfolio

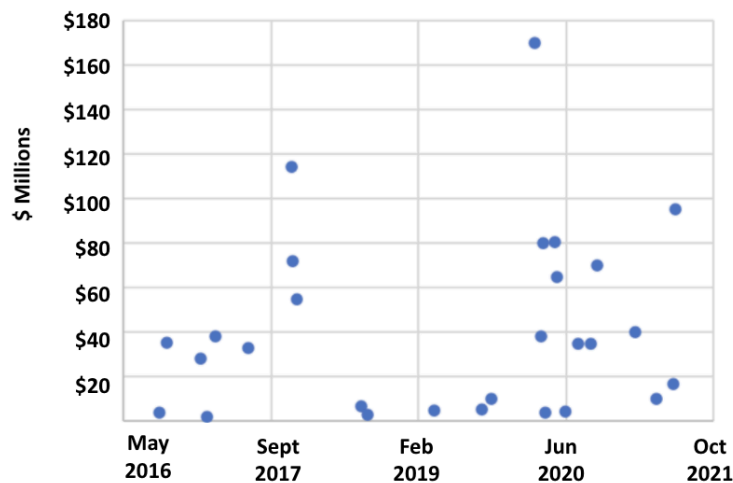
While the Fund focuses on newly established companies, they are willing to invest in any investment round (See Table 1). On six occasions, the Fund participated in a round of funding for a company they had previously invested in.

Table 1. The Fund’s Investments by Round

Round Of Funding	No. Of Investments
Seed	7
A	13
B	5
C	3
D	2
Unknown	3
Total	33

The Fund has invested in rounds ranging in size from \$1.9 million to \$130 million (See Graph 1). Companies the Fund has invested in have raised \$2.3 billion in funding. The research focus of these companies has been evenly split (Beta Cell Therapy 10, Immunotherapy 10, Treatment 7).

Graph 1. Size of Fund Rounds the Fund Participated In



Performance

As of June 30 2020, the Fund had \$125 million in assets under management. The Fund typically acquires preferred stock in companies but does issue convertible notes-- loans that can be exchanged for stock later --in some instances. As of June 30, 2020, the Fund had \$50 million in preferred stock on a cost basis in their remaining investments (See Table 2).

Although the Fund does not make public its own financial statements, some details about the Fund's investments can be found in the JDRF parent organization's financial statements. Recorded as 'Programmatic Investments', one can determine the cost basis of most of the Fund's investments.

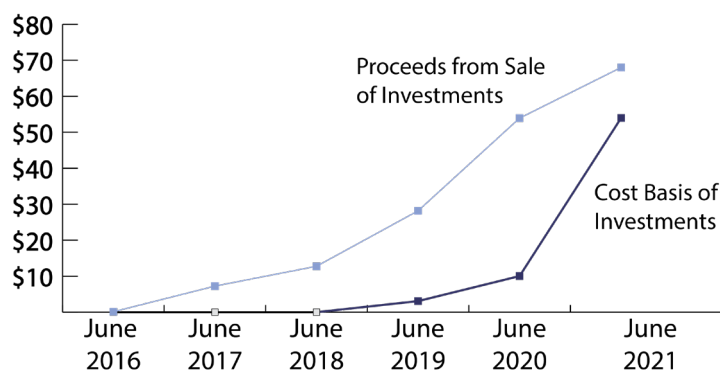
The statements categorize the various companies in which the Fund according to their stage of development. Young or new companies with a limited track record are identified as are long-running, well-established companies. The companies are categorized according to a common investment scheme from level one to level three, as follows:

Level 1:	<ul style="list-style-type: none"> ○ Publicly traded, well-established companies. ○ Able to value entity using unadjusted, quoted prices for identical assets and liabilities.
Level 2:	<ul style="list-style-type: none"> ○ Middle-stage companies who have an operating track-record and are typically private. ○ Not publicly traded; limited observable data but more than Level 1. These companies often make available to private investors financials and prospective. ○ Able to compare both observable and non-observable data to other, similar companies.
Level 3:	<ul style="list-style-type: none"> ○ Young or embryonic companies. ○ Not publicly traded; limited observable market data. ○ Expenses typically greatly outweigh income (if there is any) ○ These are typically the riskiest investments but also offer the highest potential return. ○ These companies are also the ones who benefit most from a JDRF investment or grant – which tells other potential investors, who may have otherwise avoided a Level 1 investment, that this is worth a look.

Table 2. Fair Value of Fund Investments (\$ Millions)

	As of Date:					
	6/30/16	6/30/17	6/30/18	6/30/19	6/30/20	3/31/21
Preferred Stock (Level 1)				\$ 8.5	\$ 7.4	\$ 68.0
Preferred Stock (Level 2)			\$ 11.3	\$ 13.0	\$ 42.6	\$ 0.0
Proceeds from the Sales of Fund Investments				\$ 3.4	\$ 12.7	\$ 29.0
Total			\$ 11.3	\$ 16.4	\$ 55.3	\$ 29.0

Graph 2: Cumulative Fund Performance (Cost Basis & Exit Proceeds, \$ Millions)



Exits

The Fund has had six successful exits, which is a high hit rate for a new fund. The Fund lost money on their investment in SQZ Biotech, but recuperated \$6 million of the initial investment.

The outcome of Eli Lilly's acquisition of Protomer Technologies will likely not be fully known for some time as the deal is structured to pay out milestone payments based on performance. However, it is safe to assume this will be one of the Fund's top performing investments. Details of the acquisition should be available through the SEC's EDGAR search once all the filings have been processed.



- Acquired by Merck on April 1, 2021 for \$1.85 billion.
- Investment Rounds:
 - Series A - \$58 million – JDRF T1D Fund invested \$2.0 million (convertible loan – which was converted to shares)
 - Series B - \$80 million – JDRF T1D Fund invested \$2.3 million (preferred stock)
- Outcome:
 - Merck paid \$60 per share in cash for Pandion. At the time of the acquisition, JDRF T1D Fund owned 426,333 shares and was paid \$25.6 million. Profit = \$21.3 million

IMMUNOCORE

- IPO on February 5, 2021 raised \$258.3 million and valued the company at \$1.14 billion.
- Investment Rounds:
 - Series A - \$320 million
 - Series B - \$170 million – JDRF T1D Fund invested an estimated \$7.5 million (preferred stock)
 - Series C - \$75 million
 - Debt Financing - \$103.8 million
- Outcome:
 - Lockup period expired May 5, 2021. JDRF T1D Fund's estimated ownership is 259,011 shares which are currently valued at \$39.91 for a total value of \$10.34 million. Profit = \$2.84 million



- IPO on July 19, 2018 raised \$63.9 million and valued the company at \$253.5 million.
- Investment Rounds:
 - Series B - \$28.4 million – JDRF T1D Fund invested an estimated \$1 million (preferred stock)
- Outcome:
 - Lockup period expired Oct 20, 2018. JDRF T1D Fund sold an estimated ownership is 1,108,766 shares which were valued at \$3.08 for a total value of \$3.415 million. The JDRF T1D Fund retained 674,363 shares which rose to a value of \$8.5 million by June 30, 2019. On June 30, 2020, the T1D Fund still owned 518,000 shares with a value of \$7.4 million. Profit = \$11.8 million



- IPO on October 30, 2020 raised \$71 million and valued the company at \$557.6 million.

- Investment Rounds:
 - Series A - \$5 million
 - Series B - \$24.3 million
 - Series C - \$72 million – JDRF T1D Fund invested \$3 million
 - Series D - \$65 million – JDRF T1D Fund invested an estimated \$3.4 million
- Outcome:
 - On the lockup expiration date (January 30, 2021) the price per share was \$24.55. JDRF T1D Fund's estimated ownership is 243,172 shares for a value of \$5.97 million. Profit = -\$0.43 million



- Vertex acquired Semma Therapeutics on September 3, 2019 for \$950 million in cash.
- Investment Rounds:
 - Series A - \$44 million – spins out of JDRF-funded lab
 - Series B - \$114 million – JDRF T1D Fund invested an estimated \$1.9 million (preferred stock)
- Outcome:
 - The Semma Therapeutics acquisition is the only exit of the JDRF T1D Fund between July 1 2019 and June 30, 2020. Therefore, we can assume the T1D Fund received \$6.96 million from this exit. Profit = \$5.06 million



- Eli Lilly acquired Protomer Technologies on 7/14/2021 in a deal which may exceed \$1 billion depending on performance milestones.
- Investment Rounds:
 - Series A – Unknown Amount – led by Eli Lilly and supported by the JDRF T1D Fund
- Outcome:
 - Eli Lilly obtained 14% equity from their initial investment. We estimate that the T1D Fund invested \$2 million in Protomer and received between 1%-3% for their investment. The impact to the T1D Fund would vary greatly depending on how much equity they received.

Outlook

The benchmark of venture capital-backed companies which return capital to investors varies between 8% to 25% depending on the source. By this measure, the Fund, which has returned capital on six of 28 investments (21%)—has done a good job at selecting investments with potential for a payout.

The proceeds from the sale of these investments have likely already exceeded the cost basis of investments (which should be fully reflected in the 2021 audited financial statements). We expect several more of the companies to see an exit either through an IPO or an acquisition in the near term.

As of June 30, 2020, only half of the \$125 million assets under management were deployed in program investments; the other half is presumably being held by the Fund for future investments. Surprisingly, the Fund is looking to raise an additional \$50 million. With the significant increase in capital at hand, we expect the Fund is looking to make larger investments and acquire a higher percent of equity in the companies they invest in.

One additional note is that AntolRX has licensed their T1D platform to Pfizer. However, the Fund

has not been able to exit this position as AntolRX is still a privately owned company.

Impact on T1D Cure

Ultimately, the reason the Fund exists is to accelerate a cure for T1D. As a venture philanthropy fund, it has a fiduciary and moral obligation to ensure that the financial performance is in service of achieving its ultimate goal, a T1D cure. In this section we ask: What practical progress has the Fund made toward a T1D cure?

We will address two key questions in our review of the Fund's investments:

- How focused and committed is the Fund to progressing a T1D Cure based on investments made to date?
- How do the Fund's investments compare to the JDRF parent grant making in terms of cure progress?

How focused and committed is the Fund to progressing a T1D Cure?

Overall, the Fund is quite focused on T1D, and many of its investments to date are addressing at least some part of a potential T1D cure. Among the 28 investments reviewed in Table #3, 70% address at least some aspect of a T1D cure. Most companies are focused on a specific part of what might later become a full solution for people living with the disease – either stopping the autoimmune attack or replacing the body's ability to produce insulin. Furthermore, a high proportion of projects that are in human trials (1/3) and one investment has a product that has been approved by the FDA.

On the other hand, we count 8 investments in companies that seem to have very little or no research focus on T1D. The focus of these companies is often cancer or a broader suite of autoimmune diseases and there is little or no direct reference to a T1D research program. A disproportionate number of these companies are the ones that are also extremely well capitalized – often into the hundreds of millions of dollars. Presumably the investment from the Fund will start or motivate a T1D initiative but this is difficult to verify.

A few key numbers:

- 21 investments are addressing some aspect of a cure
- 13 are focused on modifying the immune system, to stop the autoimmune attack
- 8 investments have a T1D project in human trials. One is in a phase 3 trial; the kind of large efficacy trial that the FDA typically needs to see before it can approve a treatment. Two are phase 2 trials which test efficacy with a smaller number of people, and the remaining 5 are phase 1 trials which purely test safety.
 - The investment with a phase 3 trial is Provention Bio, which attempted unsuccessfully to gain FDA approval for a T1D prevention drug in August.
 - Both phase 2 projects address glycemic control.
- 2 of the investments meet the criteria of a Practical Cure (containing both a source of cell supply and cell protection).

- Semma Therapeutics (sold to Vertex), can manufacture fully functioning beta cells from an embryonic stem cell line. Vertex started a phase 1 trial of these cells in 2021.
- Seraxis, which also is able to grow insulin producing cells, is testing a scaffold to protect the cells. Seraxis is preparing for a phase 1 trial.
- The only investment to receive FDA market approval was Bigfoot Biomedical but this is a glycemic control device and distinctly not a Practical Cure.

How do the Fund's investments compare to the JDRF parent organization's grant making in terms of cure progress?

Based upon the investments made, the Fund appears more focused on T1D cure initiatives than the JDRF parent grant making organization. Further, the projects that the Fund supports are comparatively further along in development than those supported by JDRF grants.

- 27% of the Fund's investments support T1D research projects in human trials compared to 4% for the JDRF parent organization (See Graph 3).
- 30% of the Fund's investments are researching a cure pathway either in-vivo – either human or animal testing. The JDRF parent is 23%.
- The Fund has invested in two full Practical Cure projects (7% of the total) while the JDRF parent gave grants to 3 full Practical Cure projects in 2020 (1%).
- 71% of the Funds investment companies have either a primary or secondary focus on T1D.

While the Fund is much more focused on late-stage T1D cure projects, the JDRF parent is much larger in terms of dollars given to research and the number of projects funded. JDRF made 445 grants in 2020 alone while the Fund has made only 30 investments since its inception in 2016. 431 (95%) of those grants were to organizations which are fully focused on T1D. Comparatively, the Fund made investments in 20 companies (71%) which are primarily focused on T1D. We estimate that the Fund has made roughly \$15 Million of investments per year on average compared to \$80 Million, on average, of grants made per year by the JDRF parent organization.

Graph 3 Comparison of JDRF grants to JDRF T1D Fund Investments

Category	JDRF Grants	JDRF T1D Fund
% of grants/investments that are Practical Cure (both cell supply and protect)	1%	7%
# of grants/investments that are Practical Cure	3	2
% of grants/investments that are in human trials	4%	27%
# of grants/investments that are in human trials	19	8
% of grants/investments that are in-vivo on a cure pathway	23%	33%
# of grants/investments that are in-vivo on a cure pathway	100	9
% of grants/investments to organizations focused on T1D	95%	71%
# of grants/investments to organizations focused on T1D	431	20

Conclusion

Since its inception in 2016, the Fund has grown to be an important part of the T1D research ecosystem, attracting new capital to T1D research and placing money in research projects that are, in general, much further along and closer to being in-market than JDRF grants. We also appreciate that the investments made by the Fund are in commercial organizations whose investors expect a return, and whose main priority is to deliver products to market as quickly as possible. This incentive puts the Fund in sharp contrast to the objectives of academic research centers, whose goals are muddled by the pressures of publishing and pursuit of tenure.








In our analysis, the Fund has made good, to-date, on its initial objective. It has been effective at raising new money and, through its participation and leadership in investments, its imprimatur has attracted additional capital from other investors who, without the Fund's involvement, would have put their capital somewhere else. This is good for the T1D community.

That said, the Fund's growth and success brings new challenges and, potentially, additional pressure to soften its commitment to T1D. As the Fund seeks bigger investments, the pressure to select larger and better-established organizations that are working with a range of diseases will increase. As the Fund becomes more established, it will have to bring in additional talent, many of whom could expect to be paid on a traditional VC model, where staff share in the proceeds of successful exits. Pressures such as these could cause the Fund to select investments based on their potential to return capital, rather than their potential to impact T1D cure research.

In addition, public statements from Fund leadership suggest that it may look to gain independence from the JDRF parent organization, the implications of which are unclear. All said, the pressure to drift will increase. Fund leaders must gut-check this on a regular basis to ensure that the T1D mission is held intact, or it will evolve to be just another venture fund, but one who received its initial capital from donor contributions.

Table 3. Company Focus on T1D

Company	Total Capital Raised (Millions)	Primary Research Focus	T1D Cure Progress Benchmarks			
			T1D Focus Level (H/M/L)	Cure Research Full or Part (✓/✗)	T1D Research Pathway	Stage
Abata Therapeutics	\$95	<ul style="list-style-type: none"> o Cell therapies o Focus: Multiple Sclerosis 	Med 	✓	Immune System Modification	Bench
AnToIRX	\$4	<ul style="list-style-type: none"> o "Nano-formulations" o Focus: T1D o Licensed to Pfizer 	High 	✓	Immune System Modification	Animal
Bigfoot Biomedical	\$205	<ul style="list-style-type: none"> o Devices / pens o Focus: Diabetes General 	Med 	✗	Glycemic Control	FDA Approved
Biolinq	\$15	<ul style="list-style-type: none"> o Needle-free CGM o Focus: T1D 	High 	✗	Glycemic Control	Human (P2)
Capillary Biomedical	\$3	<ul style="list-style-type: none"> o Insulin delivery o Focus: T1D 	High 	✗	Glycemic Control	Human (P1)
Code Biotherapeutics	\$10	<ul style="list-style-type: none"> o Gene therapies o Focus: Muscular Dystrophy (T1D second priority) 	Med 	✓	Cell Regeneration	Bench
Diasome Pharmaceuticals	\$54	<ul style="list-style-type: none"> o Insulin effectiveness / additive o Focus: T1D 	High 	✗	Glycemic Control	Human (P2)
<u>DiogenX</u>	\$5	<ul style="list-style-type: none"> o Biologics for cell therapy o Focus: Diabetes General 	Med 	✓	Cell Regeneration	Bench
eGenesis Bio	\$265	<ul style="list-style-type: none"> o Xeno-islet transplantation o Focus: Diabetes General 	Med 	✓	Cell Transplant	Animal
Enthera	\$39	<ul style="list-style-type: none"> o IGFB Protein therapies for autoimmune diseases o Focus: T1D 	High 	✓	Immune System Modification	Bench
GluSense Medical	\$2	<ul style="list-style-type: none"> o Miniature CGM o Focus: General Diabetes 	Med 	✗	Glycemic Control	Human (P1)
GentiBio	\$177	<ul style="list-style-type: none"> o Treg therapy for autoimmune diseases o Focus: T1D 	High 	✓	Immune System Modification	Bench
i2o Therapeutics	\$5	<ul style="list-style-type: none"> o Oral biologics for glucose management o Focus: T2D 	Low 	✗	Glycemic Control	Bench
IM Therapeutics	\$10	<ul style="list-style-type: none"> o Drugs targeting HLA autoimmune indications o Focus: Celiac and T1D 	Med 	✓	Immune System Modification	Human (P1)
Immunocore	\$669	<ul style="list-style-type: none"> o T-cell biotech to treat autoimmune diseases o Focus: Cancer (no mention of T1D in public documents) 	Low 	✓	Immune System Modification	Bench
ImmusanT	Unknown	<ul style="list-style-type: none"> o Vaccine for Celiac o Focus: Celiac o Appears to have shut down 	Low 	✗	Vaccine	Bench
Inversago Pharma	\$42	<ul style="list-style-type: none"> o CB1 Therapies o Focus: Other Autoimmune 	Low 	✓	Immune System Modification	Bench
Kriya Therapeutics	\$81	<ul style="list-style-type: none"> o Gene editing to stop autoimmune attack o Focus: T1D 	High 	✓	Gene Editing	Bench
Pandion Therapeutics	\$138	<ul style="list-style-type: none"> o Autoimmune disease therapies o Focus: Inflammatory bowel and kidney disorders 	Low 	✓	Immune System Modification	Bench
Protomer Technologies	Unknown	<ul style="list-style-type: none"> o Glucose responsive insulin o Focus: T1D 	High 	✓	Smart Insulin	Bench

Company	Total Capital Raised (Millions)	Primary Research Focus	T1D Cure Progress Benchmarks			
			T1D Focus Level (H/M/L)	Cure Research Full or Part (✓/X)	T1D Research Pathway	Stage
Provention Bio	\$28	<ul style="list-style-type: none"> Immunomodulatory Therapies Focus: T1D 	High 	✓	Immune System Modification	Human (P3)
Repertoire Immune Medicines	\$257	<ul style="list-style-type: none"> Targeted immune modification therapies Focus: Cancer (then 10 other diseases) 	Low 	✓	Immune System Modification	Bench
Semma Therapeutics	\$158	<ul style="list-style-type: none"> Embryonic stem cells Focus: T1D Sold to Vertex Pharma 	High 	✓	Cell Transplant	Human (P1)
Seraxis	\$40	<ul style="list-style-type: none"> Lab-grown insulin cells with protection device Focus: T1D 	High 	✓	Cell Transplant	Animal
Sonoma Biotherapeutics	\$70	<ul style="list-style-type: none"> Cell therapies to re-balance immune system Focus: T1D 	High 	✓	Immune System Modification	Human (IND)
SQZ Biotech	\$166	<ul style="list-style-type: none"> Cell therapies Focus: Cancer (followed by other infectious diseases) 	Low 	✓	Immune System Modification	Bench
TetraGenetics	\$7	<ul style="list-style-type: none"> Monoclonal antibodies Focus: TBD 	Low	✓	TBD	Bench
Veralox Therapeutics	\$22	<ul style="list-style-type: none"> Small molecule therapies Focus: Thrombosis (T1D is second priority) 	Med 	✓	Immune System Modification	Animal

Sources

JDRF Audited Financial Statements: The Juvenile Diabetes Research Foundation (JDRF) financials are presented on a consolidated basis, which includes JDRF and the Fund. The JDRF Fiscal Year runs from July 1st to June 30th. Four years of audited financial statements are available for years 2017 to 2020. The 2021 financial statements will be released soon and are critical for gaining insight into the Fund's performance.

Presentation Produced by T1D Fund: In March 2021, the Fund released an informational presentation designed to solicit donations to the Fund titled "JDRF T1D Fund Introduction March 2021". The document contains several key data points which were used to confirm investment amounts.

SEC EDGAR Search: We were able to obtain detailed information regarding the acquisition of Pandion Therapeutics through filings with the SEC.

JDRF Website: The JDRF website provides some high level datapoints which were used to validate assumptions.

Press Releases: Each time an investment round is closed, a press release is issued.

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

Total Amount Raised by Round \$ Millions. Yellow & bold = T1D Fund Participation

RECIPIENT	Seed Round	Series A	Series B	Series C	'Other'	TOTAL
Abata Therapeutics		\$95				\$95
AnToIRx		\$4				\$4
Bigfoot Biomedical	\$2	\$36	\$55	\$55	\$57	\$205
Bioling	\$10	\$5				\$15
Capillary Biomedical	\$3					\$3
Code Biotherapeutics	\$10					\$10
Diasome Pharmaceuticals			\$8	\$33	\$13	\$54
DiogenX	\$5					\$5
eGenesis Bio		\$38	\$100	\$125	\$2	\$265
Enthera	\$4	\$35				\$39
GluSense Medical	\$2					\$2
i2o Therapeutics	\$4				\$1	\$5
IM Therapeutics		\$10				\$10
Immunocore		\$320	\$170	\$75	\$104	\$669
ImmussanT		\$20	\$13	\$40		\$73
Inversago Pharma		\$7	\$35			\$42
Kriya Therapeutics		\$81				\$81
Pandion Therapeutics		\$58	\$80			\$138
Provention Bio		\$28				\$28
Repertoire Immune Medicines	\$30	\$38	\$189			\$257
Semma Therapeutics		\$44	\$114			\$158
Seraxis				\$40		\$40
Sonoma Biotherapeutics		\$70				\$70
SQZ Biotech		\$5	\$24	\$72	\$65	\$166
TetraGenetics					\$7	\$7
Veralox Therapeutics	\$5	\$17				\$22

JDRF 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. Stern
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 Eriksen	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 Mallory	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