

# Appendix 1

## ALLOCATION OF THE SPECIAL STATUTORY FUNDS FOR TYPE 1 DIABETES RESEARCH

The complete budget allocation of the Special Statutory Funding Program for Type 1 Diabetes Research from FY 1998 to FY 2003 (estimated) is provided in this appendix. It is important to note that the scientific goals of the special statutory funding program are not mutually exclusive and, clearly, the scientific aims of some initiatives coincide with multiple goals. However, to facilitate management of the program, most initiatives have been assigned to a single, specific goal. An exception is RFA DK99-013 Pilot Studies for New Therapies for Type 1 Diabetes and its Complications, which funded an extremely diverse group of research projects spanning a range of topics of relevance to four goals (II, III, IV, and V); the budget of this RFA was distributed across these goals.

# BUDGET OF THE SPECIAL STATUTORY FUNDING PROGRAM

The expenditure of funds from the Special Statutory Funding Program for Type 1 Diabetes Research is detailed in Table A1. Budget figures for FY 1998 through FY 2002 represent actual spending levels. Estimated budget data for FY 2003 are subject to change before the end of the fiscal year. Notably, some projects have received additional support from funds provided to the NIH or the CDC

through the regular appropriations process or through non-government sources. In addition, due to the time required for some projects, participating organizations have made fiscal commitments to several major initiatives beyond FY 2003. Scientific descriptions of each funded or planned initiative are located in the main text and/or Appendix 3 of this report.

**TABLE A1 Detailed Budget of the Special Statutory Funding Program for Type 1 Diabetes Research (FY 1998 - 2003)**

<b>GOAL I: Identify the Genetic and Environmental Causes of Type 1 Diabetes</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003 (est)</b>
International Type 1 Diabetes Genetics Consortium (NIDDK, NIAID, NHGRI, JDRF, Diabetes UK)*	0	0	0	1,536,000	5,047,330	7,923,756
13th International Histocompatibility Working Group (NIAID, NIDDK, NCI, NHGRI, JDRF)	0	0	0	3,000,000	1,000,000	0
Population Based Registries for Type 1 Diabetes in Children (SEARCH) (CDC, NIDDK)	0	0	0	4,200,000	3,000,000	4,000,000
EDIC Genetics Study (NIDDK)	0	0	0	4,000,000	0	0
Type 1 Diabetes TrialNet Epidemiology Study (NIDDK, NIAID, NICHD, JDRF, ADA)	0	0	0	5,000,000	2,236,915	0
Triggers and Environmental Determinants of Diabetes in Youth (TEDDY) (RFA DK02-029) (NIDDK, NIAID, NICHD, NIEHS, CDC, JDRF, ADA)	0	0	0	0	5,000,000	5,000,000
Type 1 Diabetes Mouse Repository (NCRR, NIDDK)	0	0	0	4,000,000	0	0
Bioinformatics Integration Support Contract (RFP AI-DAIT02-16) (NIAID)	0	0	0	0	1,000,000	1,000,000
Mammalian Gene Collection (NCI, NIDDK)	0	0	0	500,000	0	0
Sequence the NOD Mouse for Immune System Genes for Type 1 Diabetes (NIAID)	0	0	0	4,500,000	0	0

\* Initiative co-sponsors are listed with the lead sponsor in bold type. Organizational abbreviations are located in Appendix 7.

**TABLE A1**

<b>GOAL I: Identify the Genetic and Environmental Causes of Type 1 Diabetes</b> (Continued)	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003 (est)</b>
Biotechnology Resource Centers (RFA DK00-002) (NIDDK)	0	0	454,575	693,750	502,250	0
Functional Genomics of the Developing Endocrine Pancreas (RFA DK99-007) (NIDDK)	0	1,500,000	3,241,602	3,081,250	0	0
Public Health Pilot Programs in Newborn Screening (CDC)	246,718	301,544	548,261	804,826	609,652	500,000
Proficiency Testing for Laboratory Assays of Dried Blood Spots (CDC)	0	0	0	0	0	190,256
High-Throughput, High-Sensitivity Methods for Measuring Markers of Type 1 Diabetes (CDC)	246,718	268,648	219,305	219,305	219,305	0
Functional Genomics Approaches to Diabetic Complications - IHWG SNPs (NHGRI, NIDDK)	0	0	0	750,000	0	0
<b>Total - Goal I</b>	<b>493,436</b>	<b>2,070,192</b>	<b>4,463,743</b>	<b>32,285,131</b>	<b>18,615,452</b>	<b>18,614,012</b>

<b>GOAL II: Prevent or Reverse Type 1 Diabetes</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003 (est)</b>
Type 1 Diabetes TrialNet (RFA DK01-004) (NIDDK, NIAID, NICHD, JDRF, ADA)	0	0	0	10,320,000	13,252,259	16,936,304
Immune Tolerance Network - Immunomodulation (RFP AI-99-30) (NIAID, NIDDK, JDRF)	0	0	0	2,000,000	0	0
Autoimmune Diseases Prevention Centers (RFA AI00-016) (NIAID, NICHD, NIDDK, ORWH, JDRF)	0	0	0	2,154,000	2,318,796	2,336,681
Trial to Reduce the Incidence of Type 1 Diabetes in the Genetically-At-Risk (TRIGR) (NICHD, CIHR, EFSD, EU, JDRF, Mead Johnson, NDF)	0	0	0	2,000,000	500,000	500,000
Diabetes Autoantibody Standardization Program (CDC, IDS)	816,680	746,014	438,609	778,609	755,199	1,158,101
C Peptide Standardization (CDC, NIDDK)	0	0	0	0	0	53,000
Data and Biosample Repository (RFP DK02-04) (NIDDK)	0	0	0	0	0	2,500,000
Gene Therapy Approaches for Diabetes and its Complications (RFA DK01-006) (NIDDK, NHLBI, NIAID)	0	0	0	993,000	1,112,600	0

**TABLE A1**

<b>GOAL II: Prevent or Reverse Type 1 Diabetes</b> (Continued)	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003 (est)</b>
Innovative Grants in Immune Tolerance (RFA AI00-006) (NIAID, NHLBI, NIDDK)	0	0	0	2,443,000	1,658,523	1,658,523
Pilot Studies for New Therapies for Type 1 Diabetes and its Complications (RFA DK99-013) (NIDDK, NIAID)	0	1,146,742	1,170,524	0	0	0
Immunopathogenesis of Type 1 Diabetes (RFA DK98-010) (NIDDK, NIAID, NICHD)	4,086,215	4,124,050	3,806,447	0	0	0
Autoantibodies in Type 1 Diabetes (NIDCR)	0	100,000	200,344	200,000	100,000	0
Diabetes Prevention Trial for Type 1 Diabetes - Supplements (NIDDK, NIAID, NICHD, NCRR)	3,350,000	95,000	0	0	0	0
One Year Supplements to Ongoing Projects (NIDDK, NIAID, NCRR)	994,340	0	0	0	0	0
<b>Total - Goal II</b>	<b>9,247,235</b>	<b>6,211,806</b>	<b>5,615,924</b>	<b>20,888,609</b>	<b>19,697,377</b>	<b>25,142,609</b>

<b>GOAL III: Develop Cell Replacement Therapy</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003 (est)</b>
Beta Cell Biology Consortium (RFA DK01-014) (NIDDK)	0	0	0	7,250,000	7,589,779	6,259,422
Comprehensive Programs in Beta Cell Biology (RFA DK02-014) (NIDDK)	0	0	0	0	3,154,850	3,109,543
Non-Human Primate Immune Tolerance Cooperative Study Group (RFA AI01-006) (NIAID, NIDDK)	0	0	0	518,000	1,822,876	1,542,367
Immune Tolerance Network - Islet Transplantation (RFP AI-99-30) (NIAID, NIDDK, JDRF)	0	0	0	3,500,000	0	0
NIDDK Intramural Program (NIDDK)	0	492,458	0	1,370,000	0	0
Islet Cell Resource Centers (RFA RR01-002) (NCRR, NIDDK)	0	0	0	5,000,000	1,999,998	2,000,000
Islet/Beta Cell Transplant Registry (RFP DK00-002) (NIDDK)	0	0	0	3,964,000	0	0
Islet Encapsulation Research (NIDDK)	0	0	0	0	894,471	0
Gene Transfer Approaches to Enhance Islet Transplantation (RFA DK02-020) (NIDDK, NIAID)	0	0	0	0	1,744,423	1,727,771

**TABLE A1**

<b>GOAL III: Develop Cell Replacement Therapy</b> (Continued)	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003 (est)</b>
Imaging Pancreatic Beta Cell Mass, Function, Engraftment, or Inflammation (RFA DK02-002) (NIDDK)	0	0	0	0	1,258,302	1,253,023
New Strategies for Treatment of Type 1 Diabetes Mellitus (RFA DK00-001) (NIDDK)	0	0	1,135,749	1,107,681	882,200	0
Pilot Studies for New Therapies for Type 1 Diabetes and its Complications (RFA DK99-013) (NIDDK)	0	779,293	783,039	0	0	0
Cellular and Molecular Approaches to Achieving Euglycemia (RFA DK98-007) (NIDDK, NIAID, NICHD)	4,883,944	4,921,491	3,962,434	0	0	0
Beta Cell Proteomics (NIDDK, NHGRI)	0	0	0	2,495,000	0	0
Glucagon-like Peptide as a Differentiation Factor for Pancreatic Beta Cells (NIA)	94,379	99,995	0	0	0	0
One Year Supplements to Ongoing Projects (NIDDK, NIAID, NICHD)	1,401,654	0	0	0	0	0
<b>Total - Goal III</b>	<b>6,379,977</b>	<b>6,293,237</b>	<b>5,881,222</b>	<b>25,204,681</b>	<b>19,346,899</b>	<b>15,892,126</b>

<b>GOAL IV: Prevent or Reduce Hypoglycemia in Type 1 Diabetes</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003 (est)</b>
DirecNet: A Network to Test Glucose Sensors in Children with Type 1 Diabetes (RFA HD01-009) (NICHD, NIDDK)	0	0	0	2,000,000	3,148,071	2,022,807
Standardization Program to Improve the Measurement of Blood Glucose (CDC)	0	148,284	188,931	231,526	101,319	209,282
Effects of Hypoglycemia on Neuronal and Glial Cell Function (RFA NS02-008) (NINDS, NIDDK, JDRF)	0	0	0	0	1,454,310	1,438,495
Sensor Development and Validation (RFA EB02-002) (NIBIB, NIDDK)	0	0	0	0	2,091,949	2,073,237
Understanding Hypoglycemia Unawareness in Patients with Diabetes (RFA DK01-031) (NIDDK, NINDS, JDRF)	0	0	0	0	2,055,648	2,036,527
Pilot Studies for New Therapies for Type 1 Diabetes and its Complications (RFA DK99-013) (NIDDK)	0	141,408	130,216	0	0	0
Glucose Sensors in the Treatment of Diabetes (RFA DK98-008) (NIDDK, NCRR)	3,298,740	3,239,772	2,117,998	0	0	0

**TABLE A1**

<b>GOAL IV: Prevent or Reduce Hypoglycemia in Type 1 Diabetes</b> (Continued)	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003 (est)</b>
Developing New Tools for Detecting and Monitoring Low Blood Glucose (CDC)	0	142,548	142,548	142,548	142,548	0
Development of Surrogate Markers for Clinical Trials: Supplements (NIMH, NIDDK)	0	0	0	300,000	0	0
One Year Supplements to Ongoing Projects (NIDDK, NCRR)	172,000	0	0	0	0	0
<b>Total - Goal IV</b>	<b>3,470,740</b>	<b>3,672,012</b>	<b>2,579,693</b>	<b>2,674,074</b>	<b>8,993,845</b>	<b>7,780,348</b>

<b>GOAL V: Prevent or Reduce the Complications of Type 1 Diabetes</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003 (est)</b>
Genetics of Kidneys in Diabetes (GoKinD) Study (CDC, JDRF)	921,792	872,114	974,809	1,315,827	1,315,827	1,247,536
EDIC: Measurement of Cardiovascular Disease (NIDDK)	1,000,000	0	0	0	3,731,884	0
EDIC: Uropathy and Autonomic Neuropathy (NIDDK)	0	0	0	3,000,000	75,198	0
Studies to Identify Genetic Associations in Patients with Microvascular Complications (FIND) (NIDDK, NEI, NCMHD)	0	0	0	500,000	500,000	500,000
Diabetic Macular Edema Clinical Trials Network (RFA EY01-001) (NEI)	0	0	0	0	2,000,000	2,000,000
Animal Models of Diabetic Complications Consortium (RFA DK01-009 and HL01-010) (NIDDK, NHLBI)	0	0	0	3,982,000	4,135,862	4,378,729
Improving the Clinical Measurement of HbA1C (CDC)	768,092	520,848	487,537	466,649	384,903	534,825
Pilot Trials to Prevent or Slow Progression of Diabetic Nephropathy (RFA DK02-025) (NIDDK)	0	0	0	0	1,325,273	1,186,669
Surrogate Markers for Diabetic Microvascular Complications (RFA DK02-016) (NIDDK, NEI, NINDS)	0	0	0	0	3,427,339	3,468,855
Imaging Early Markers of Diabetic Microvascular Complications in Peripheral Tissue (RFA DK02-001) (NIDDK)	0	0	0	0	1,282,371	1,273,750
Oral Microbiology/Immunology of Type 1 Diabetes (RFA DE01-001) (NIDCR)	0	0	0	645,000	500,000	0

**TABLE A1**

<b>GOAL V: Prevent or Reduce the Complications of Type 1 Diabetes (Continued)</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003 (est)</b>
Neurobiology of Diabetic Complications (RFA NS00-002) (NINDS, NIDDK, JDRF)	0	0	736,250	724,815	479,385	539,810
Pilot Studies for New Therapies for Type 1 Diabetes and its Complications (RFA DK99-013) (NIDDK, NHLBI, NEI)	0	1,174,221	1,159,255	0	0	0
Neurological Complications of Diabetes (RFA NS99-005) (NINDS, NIDDK)	0	2,243,319	2,193,073	2,007,389	1,603,619	0
Pathogenesis and Therapy of Complications of Diabetes (RFA DK98-009) (NIDDK, NEI, NHLBI, NICHD, NINDS)	6,713,260	6,914,914	5,622,671	440,431	452,086	0
Development of Clinical Markers for Kidney Disease (NIDDK)	0	0	0	834,000	0	0
Advanced Glycation Endproducts (CDC)	0	0	0	280,710	57,567	0
Development of Surrogate Markers for Clinical Trials: Supplement (NIEHS, NIDDK)	0	0	0	318,000	0	0
One Year Supplements to Ongoing Projects (NIDDK, NEI, NIDCR, NICHD, NHLBI)	936,150	0	0	0	0	0
<b>Total - Goal V</b>	<b>10,339,294</b>	<b>11,725,416</b>	<b>11,334,751</b>	<b>14,685,977</b>	<b>21,402,845</b>	<b>15,130,174</b>

**TABLE A1**

<b>GOAL VI: Attract New Talent to Research on Type 1 Diabetes</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003 (est)</b>
Training Programs in Diabetes Research for Pediatric Endocrinologists (RFA DK02-024) (NIDDK, JDRF, ADA)	0	0	0	0	2,571,342	2,954,054
Innovative Partnerships in Type 1 Diabetes (RFA DK02-023) (NIDDK, NEI, NIAID)	0	0	0	0	5,778,702	5,638,193
Bench to Bedside Research on Type 1 Diabetes and its Complications (RFA DK02-022) (NIDDK, NIAID)	0	0	0	0	3,443,507	3,472,583
Bench to Bedside Research on Type 1 Diabetes and its Complications (RFA DK03-001) (NIDDK, NIAID, NEI, NHLBI)	0	0	0	0	0	2,000,000
Phased Innovation Partnerships (NIDDK)	0	0	0	4,049,000	0	0
<b>Total - Goal VI</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4,049,000</b>	<b>11,793,551</b>	<b>14,064,830</b>

	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003 (est)</b>
Conferences	30,000	19,315	109,900	180,458	150,031	TBD
Balance	39,318	8,022	4,767	32,070	0	0
Not yet distributed	0	0	0	0	0	3,375,901
<b>TOTAL</b>	<b>30,000,000</b>	<b>30,000,000</b>	<b>30,000,000</b>	<b>100,000,000</b>	<b>100,000,000</b>	<b>100,000,000</b>



# RESEARCH SOLICITATIONS SUPPORTED BY THE SPECIAL STATUTORY FUNDING PROGRAM

Multiple research solicitations for projects to be supported by the Special Statutory Funding Program for Type 1 Diabetes Research were issued in the form of Requests for Applications (RFAs). The complete text of each RFA can be accessed at the website of the NIH Guide to Grants and Contracts (<http://grants.nih.gov/grants/guide/index.html>). Additional information on the objectives of the RFAs and the accomplishments or scientific plans of the awarded grants is located in the main text

and Appendix 3. These RFAs include solicitations for both investigator-initiated R01, R21, and R24 research projects as well as for consortia managed through cooperative agreements (U-coded awards). Other research projects were solicited through Requests for Proposals (RFPs), administrative supplements, or ancillary projects to ongoing clinical trials or consortia. Additional RFAs for diabetes-related research were issued during this time period and supported solely with regularly appropriated funds.

**TABLE A2 Success Rates of RFAs for Type 1 Diabetes Research ‡ (FY 1998 - 2003)**

RFA	Initiative	Applications	Total Grants	T1D Grants	Success Rate
AI00-006	Innovative Grants in Immune Tolerance	81	32	11	40%
AI00-016	Autoimmune Disease Prevention Centers	9	6	6	67%
AI01-006	Non-Human Primate Immune Tolerance Cooperative Study Group	14	8	4	57%
DE01-001	Oral Microbiology and Immunology of Type 1 Diabetes	17	6	5	35%
DK98-007	Cellular and Molecular Approaches to Achieving Euglycemia	55	22	20	40%
DK98-008	Glucose Sensors in the Treatment of Diabetes	35	17	17	49%
DK98-009	Pathogenesis and Therapy of Complications of Diabetes	124	36	30	29%
DK98-010	Immunopathogenesis of Type 1 Diabetes	46	19	17	37%
DK99-007	Functional Genomics of the Developing Endocrine Pancreas	3	2	2	67%
DK99-013	Pilot Studies for New Therapies for Type 1 Diabetes and its Complications	107	25	23	23%
DK00-001	New Strategies for Treatment of Type 1 Diabetes Mellitus	15	3	3	20%
DK00-002	Biotechnology Resource Centers	35	10	1	29%
DK01-004	TrialNet: Core Support Facilities	3	2	1	67%
DK01-006	Gene Therapy Approaches to Diabetes and its Complications	44	13	7	30%
DK01-009	Mouse Models of Diabetic Complications Consortium (AMDCC)	13	8	5	62%

**TABLE A2**

<b>RFA</b>	<b>Initiative</b>	<b>Applications</b>	<b>Total Grants</b>	<b>T1D Grants</b>	<b>Success Rate</b>
DK01-014	Beta Cell Biology Consortium	8	5	5	63%
DK01-031	Understanding Hypoglycemia Unawareness in Patients with Type 1 Diabetes	13	8	8	62%
DK02-001	Imaging Early Markers of Diabetic Microvascular Complications in Peripheral Tissue	21	6	6	29%
DK02-002	Imaging Pancreatic Beta Cell Mass, Function, Engraftment, or Inflammation	8	6	6	75%
DK02-014	Comprehensive Programs in Beta Cell Biology	19	8	7	42%
DK02-016	Surrogate Endpoints for Diabetic Microvascular Complications	28	10	10	36%
DK02-020	Gene Transfer Approaches to Enhance Islet Cell Transplantation	27	12	12	44%
DK02-022	Bench to Bedside Research on Type 1 Diabetes and its Complications	25	11	11	44%
DK02-023	Innovative Partnerships in Type 1 Diabetes Research	63	16	16	25%
DK02-024	Training Programs in Diabetes Research for Pediatric Endocrinologists	30	14	14	47%
DK02-025	Pilot Trials to Prevent or Slow Progression of Diabetic Nephropathy	11	4	3	36%
DK02-029	Triggers and Environmental Determinants of Diabetes in Youth (TEDDY)	16	9	9	56%
DK03-001	Bench to Bedside Research on Type 1 Diabetes and its Complications	NA*	NA	NA	NA
EB02-002	Sensor Development and Validation	87	21	4	24%
EY01-001	Diabetic Macular Edema Clinical Trials Network	13	3	1	23%
HD01-009	DirecNet: A Network to Test Glucose Sensors in Children with Type 1 Diabetes	19	6	6	32%
HL01-010	Non-Mouse Models of Diabetes Complications in Cardiovascular and Microvascular Diseases (AMDCC)	5	1	1	20%
NS99-005	Neurological Complications of Diabetes	48	10	10	21%
NS00-002	Neurobiology of Diabetic Complications	59	19	18	32%
NS02-008	Effects of Hypoglycemia on Neuronal and Glial Cell Function	24	6	6	25%
RR01-002	Human Pancreatic Islet Cell Resource Centers	13	10	10	77%
	<b>TOTAL:</b>	<b>1138</b>	<b>394</b>	<b>315</b>	<b>35%</b>

‡ The purpose of Table A2 is to show the overall funding success rate of grants submitted to the Special Statutory Funding Program for Type 1 Diabetes Research. Because of the relatively small number of grants involved for any particular RFA, this table does not provide data that could be used meaningfully for comparisons of the success rates of individual RFAs. Success rates of applications under specific RFAs may vary depending on one or more of the following factors: (1) the amount of funding allocated to the RFA, (2) the number of applications received, and (3) the state of the science in a particular field at the time the RFA was issued and other parameters.

\* Not available - applications are due 2/26/03 and grants are expected to be awarded in 9/03.

# EXTRAMURAL RESEARCH GRANTS

Extramural NIH grants, cooperative agreements, contracts, and supplements, which were awarded through the Special Statutory Funding Program for Type 1 Diabetes Research between FY 1998-2002, are listed in Table A3. Some initiatives supported additional awards with regularly appropriated funds. Abstracts describing research topics pursued through

these grants are available through the NIH CRISP (Computer Retrieval of Information of Scientific Projects) database at <http://crisp.cit.nih.gov/>. Scientific advances resulting from these awards as of the writing of this report or research plans for recently awarded grants are located in the main text for each scientific goal and Appendix 3.

**TABLE A3 Investigator-Initiated Research Grants (FY 1998 - 2003)**

**GOAL I: IDENTIFY THE GENETIC AND ENVIRONMENTAL CAUSES OF TYPE 1 DIABETES**

<b>International Type 1 Diabetes Genetics Consortium</b> Donald Bowden, <i>Wake Forest University</i> ‡ Patrick Concannon, <i>Virginia Mason Research Center</i> Stephen Rich, <i>Wake Forest University Health Sciences</i> Johns Hopkins University	2001* R01 DK056289 2001 R01 DK046635 2002 U01 DK062418 2002 N01 HG65403	ID of Diabetes Genes on Human Chromosome 20Q12-Q13.1 Susceptibility Genes in Type 1 Diabetes Type 1 Diabetes Genetics Consortium Center for Inherited Disease Research
<b>13th International Histocompatibility Working Group</b> John Hansen, <i>Fred Hutchinson Cancer Research Center</i>	2001 U24 AI049213	13th International Histocompatibility Working Group
<b>EDIC Genetics Study</b> William Dahms, <i>Case Western Reserve University</i> John Lachin, <i>George Washington University</i>	2001 N01 DK062203 2001 N01 DK062204	Coordinating Center - Diabetes Interventions/Complications Epidemiology of Diabetes Interventions and Complications
<b>Type 1 Diabetes TrialNet Epidemiology Study</b> John Lachin, <i>George Washington University</i>	2001 U01 DK061055	Type 1 Diabetes TrialNet: Operations Coordinating Center
<b>Triggers and Environmental Determinants of Diabetes in Youth (TEDDY) (RFA DK02-029)</b> William Hagopian, <i>Pacific Northwest Research Institute</i> Jeffrey Krischer, <i>Moffitt Cancer Center and Research Institute</i> Ake Lernmark, <i>University of Washington</i> Marian Rewers, <i>University of Colorado Health Sciences Center</i> Jin-Xiong She, <i>Medical College of Georgia</i> Olli Simell, <i>Turku University Central Hospital</i> Anette Ziegler, <i>Diabetes Research Institute</i>	2002 U01 DK063829 2002 U01 DK063790 2002 U01 DK063861 2002 U01 DK063821 2002 U01 DK063865 2002 U01 DK063863 2002 U01 DK063836	Diabetes Evaluation in Washington (DEW-IT) Clinical Center Data Coordinating Center Diabetes Prediction in Skane (DiPiS) Environmental Causes of Type 1 Diabetes Triggers and Environmental Determinants of Diabetes in Youth Environmental Triggers of Type 1 Diabetes Type 1 Diabetes Triggers: Diet Modification in Neonates
<b>Type 1 Diabetes Mouse Repository</b> Muriel Davisson, <i>The Jackson Laboratory</i>	2001 P40 RR009781	Transgenic and Targeted Mutant Preservation
<b>Bioinformatics Integration Support Contract (RFP NIAID-DAIT-02-016)</b> Nothrop Grumman Research Triangle Institute	2002 N01 AI025487 2002 N01 AI025486	Bioinformatics Integration Support Contract Bioinformatics Integration Support Contract
<b>Mammalian Gene Collection</b> Science Applications International Corporation	2001 N01 C0012400	Mammalian Gene Collection

‡ Institutional affiliations at the time of the grant award are listed. Some principal investigators may have moved to new institutions.

\* First fiscal year of funding.

**TABLE A3**

**GOAL I: IDENTIFY THE GENETIC AND ENVIRONMENTAL CAUSES OF TYPE 1 DIABETES** (Continued)

<p><b>Sequence the NOD Mouse for Immune System Genes for Type 1 Diabetes</b> University of California San Francisco</p>	2001 N01 AI015416	Collaborative Network for Clinical Research on Immune Tolerance
<p><b>Biotechnology Resource Centers (RFA DK00-002)</b> Jin-Xiong She, <i>University of Florida</i></p>	2000 U24 DK058778	NIDDK Biotechnology Center at the University of Florida
<p><b>Functional Genomics of the Developing Endocrine Pancreas (RFA DK99-007)</b> Klaus Kaestner, <i>University of Pennsylvania</i> Marshall Permutt, <i>Washington University</i></p>	1999 R24 DK056947 1999 R24 DK056954	Functional Genomics of the Developing Endocrine Pancreas Functional Genomics of the Developing Endocrine Pancreas
<p><b>Functional Genomics Approaches to Diabetic Complications - IHWG SNPs: Supplements</b> Maynard Olson, <i>University of Washington</i> Richard Spielman, <i>University of Pennsylvania</i></p>	2001 P50 HG002351 2001 R01 HG002386	Center for the Study of Natural Genetic Variation Genome-Wide Analysis of Genetic Variation and Expression

**GOAL II: PREVENT OR REVERSE TYPE 1 DIABETES**

<p><b>Type 1 Diabetes TrialNet (RFA DK01-004)</b> John Lachin, <i>George Washington University</i></p>	2001 U01 DK061055	Type 1 Diabetes TrialNet: Operations Coordinating Center
<p><b>Immune Tolerance Network - Immunomodulation (RFP NIAID-99-30)</b> University of California San Francisco</p>	2001 N01 AI015416	Collaborative Network for Clinical Research on Immune Tolerance
<p><b>Autoimmune Diseases Prevention Centers (RFA AI00-016)</b> Teodor-Doru Brumeanu, <i>Mount Sinai School of Medicine</i> George Eisenbarth, <i>University of Colorado Health Sciences Center</i> C.G. Fathman, <i>Stanford University</i> C.G. Fathman, <i>Stanford University</i> David Hafler, <i>Brigham and Women's Hospital</i> Matthias Von Herrath, <i>La Jolla Institute for Allergy/Immunology</i></p>	2001 R01 DK061927 2001 U19 AI050864 2001 U01 DK061934 2001 U19 DK061925 2001 U01 DK061926 2001 U19 AI051973	Prevention of Type 1 Diabetes by Soluble, MHC-II Peptide Virginia Mason/UCHSC Autoimmune Prevention Center Strategies for Prevention of Autoimmunity CD25+ Regulator CD4+ T Cells Role of Regulatory CD4+/CD25+ T Cells in Diabetes How Does Blockade of CD40/CD40L Prevent Autoimmunity?
<p><b>Trial to Reduce the Incidence of Type 1 Diabetes in the Genetically-At-Risk (TRIGR)</b> Hans Akerblom, <i>University of Helsinki</i> Dorothy Becker, <i>Children's Hospital (Pittsburgh)</i></p>	2001 U01 HD040364 2001 U01 HD042444	Trial to Reduce IDDM in the Genetically-At-Risk Study Nutritional Primary Prevention of Type 1 Diabetes
<p><b>Gene Therapy Approaches for Diabetes and Its Complications (RFA DK01-006)</b> George Christ, <i>Yeshiva University</i> Chih-Pin Liu, <i>Beckman Research Institute</i> William Osborne, <i>University of Washington</i> Manikkam Suthanthiran, <i>Weill Medical College</i> Jide Tian, <i>University of California Los Angeles</i> Roland Tisch, <i>University of North Carolina Chapel Hill</i> Keith Webster, <i>University of Miami</i></p>	2001 R21 DK060204 2001 R21 DK060190 2001 R21 AI051637 2001 R21 DK060186 2001 R21 DK060209 2001 R21 AI051638 2001 R21 HL069812	Gene Therapy for Bladder Hyperactivity in Diabetic Rats Regulation of Type 1 Diabetes Using Ribozymes Autoantigen Delivery to Induce Tolerance in Diabetes Gene Therapy for Islet Transplantation Genetic Modification of DCs as Immunotherapy for IDDM The Use of VEE Replicons Encoding GAD65 to Treat IDDM Therapeutic Angiogenesis to Treat Ischemic Disorders
<p><b>Innovative Grants in Immune Tolerance (RFA AI00-006)</b> Adam Adler, <i>University of Connecticut School of Med/Dnt</i> Lin Chen, <i>University of Colorado</i> Mark Crew, <i>University of Arkansas</i> Joanna Davies, <i>Scripps Research Institute</i> Nicholas Gascoigne, <i>Scripps Research Institute</i> Irving Goldschneider, <i>University of Connecticut School of Med/Dnt</i> Hidehiro Kishimoto, <i>Scripps Research Institute</i> Mark Poznansky, <i>Massachusetts General Hospital</i> Haval Shirwan, <i>University of Louisville</i> Luk Van Parijs, <i>Massachusetts Institute of Technology</i> Dario Vignali, <i>St. Jude's Children's Research Hospital</i></p>	2001 R21 AI049813 2001 R21 AI049905 2001 R21 AI049885 2001 R21 DK061334 2001 R21 DK061329 2001 R21 AI049882 2001 R21 DK061332 2001 R21 AI049858 2001 R21 DK061333 2001 R21 AI049897 2001 R21 DK061330	Comparing Toleragenic Versus Immunogenic APC Function Develop Peptide Inhibitors of the NFAT/AP-1 Complex Tolerated Xenografts Using Virus Stealth Technology Transplantation Tolerance Induced by Linked Suppression Real-Time Molecular Interactions in Tolerance Induction Induction Acquired Thymic Tolerance by Regulatory APCs Tolerance in NOD Mice Movement of Recipient T-Cells Away from an Allograft Apoptosis: A Means of Immune Regulation to Treat Diabetes Specificity and Fate of Autoreactive CD4+ T-cells Tolerance Induction by Targeted Expression of GAD

**TABLE A3**

**GOAL II: PREVENT OR REVERSE TYPE 1 DIABETES** (Continued)

<p><b>Pilot Studies for New Therapies for Type 1 Diabetes and Its Complications (RFA DK99-013)</b>                  Steinunn Baekkeskov, <i>University of California San Francisco</i>                  Kevin Breuel, <i>East Tennessee State University</i>                  Alan Escher, <i>Loma Linda University</i>                  Daniel Kaufman, <i>University of California Los Angeles</i>                  William Langridge, <i>Loma Linda University</i>                  Jon Mabley, <i>Inotek Corporation</i>                  Noel MacLaren, <i>Louisiana State University Medical Center</i>                  James Thomas, <i>Vanderbilt University</i></p>	<p>1999 R21 DK055977                  1999 R21 DK057115                  1999 R21 DK057113                  1999 R21 AI047773                  1999 R21 DK057206                  1999 R21 DK057239                  1999 R21 DK057122                  1999 R21 AI047763</p>	<p>Generation of a Non-Human Primate Model of Type 1 Diabetes                  NF-Kappa B as a Therapeutic Target for IDDM                  APC-Targeting Vaccine for Prevention of Type 1 Diabetes                  Rational Design of Antigen-Based Immunotherapeutics                  A Targeted Plant-Based Vaccine for Type 1 Diabetes                  Poly(ADP) Ribose Synthetase and Autoimmune Diabetes                  A Vaccine for Immune Mediated Diabetes                  Selection and Regulation of B Lymphocytes in IDDM</p>
<p><b>Immunopathogenesis of Type 1 Diabetes Mellitus (RFA DK98-010)</b>                  Cheong-Hee Chang, <i>University of Michigan Ann Arbor</i>                  Patrick Concannon, <i>Virginia Mason Research Center</i>                  John Corbett, <i>St. Louis University</i>                  George Eisenbarth, <i>University of Colorado Health Sciences Center</i>                  Christopher Goodnow, <i>Australian National University</i>                  David Hafler, <i>Brigham and Women's Hospital</i>                  Kathryn Haskins, <i>University of Colorado Health Sciences Center</i>                  Jonathan Katz, <i>Washington University</i>                  William Kwok, <i>Virginia Mason Research Center</i>                  Paul Lehmann, <i>Case Western Reserve University</i>                  Chih-Pin Liu, <i>Beckman Research Institute</i>                  Ali Najj, <i>University of Pennsylvania</i>                  Alberto Pugliese, <i>University of Miami</i>                  Eric Simone, <i>University of Colorado Health Sciences Center</i>                  Grete Sonderstrup, <i>Stanford University</i>                  Matthias Von Herrath, <i>Scripps Research Institute</i>                  Li Wen, <i>Yale University</i></p>	<p>1998 R21 AI044454                  1998 R01 DK055970                  1998 R01 AI044458                  1998 R01 DK055969                  1998 R01 AI044392                  1998 R01 AI044447                  1998 R01 AI044482                  1998 R01 AI044416                  1998 R01 AI044443                  1998 R21 AI044484                  1998 R21 AI044429                  1998 R01 HD037754                  1998 R01 AI044456                  1998 R01 AI044466                  1998 P01 DK055364                  1998 R01 AI044451                  1998 R01 AI044427</p>	<p>Tolerance and Autoreactivity by Self Antigen                  Immunological Candidate Genes for IDDM Susceptibility                  Mechanisms of Viral-Induced Beta Cell Damage                  In Vivo NOD Evaluation of a Pathogenic Insulin Peptide                  Mechanisms Regulating Islet Destruction by CD4 T cells                  The Role of Invariant T Cells and IL-4 in Type 1 Diabetes                  Immunoregulation in the NOD Mouse                  Role of I-AG7 on Selecting Autoreactive T Cells                  Structure and Immunobiology of an IDDM-Protective Molecule                  Human/Humanized T Cell Response to Islet Cell Antigens                  Regulatory Mechanisms in Type 1 Diabetes                  Autoimmune Diabetes-Maternal Immunoglobulin                  Proinsulin Expression in the Immune System                  NOD T Cell Receptors for Specific Islet Autoantigens                  Autoimmune T and B Cell Responses in Type 1 Diabetes                  Regulation and Immunotherapy of IDDM                  Development of a Novel Humanized Animal Model of IDDM</p>
<p><b>Diabetes Prevention Trial for Type 1 Diabetes - Supplements</b>                  Nathaniel Clark, <i>University of Vermont</i>                  George Eisenbarth, <i>University of Colorado Health Sciences Center</i>                  Richard Jackson, <i>Joslin Diabetes Center</i>                  Noel MacLaren, <i>University of Florida</i>                  Alvin Powers, <i>Vanderbilt University</i>                  Susan Ratzan, <i>University of Connecticut Health Center</i>                  David Schade, <i>University of New Mexico</i>                  Desmond Schatz, <i>University of Florida</i>                  Stuart Weinzimer, <i>Children's Hospital (Philadelphia)</i></p>	<p>1998 M01 RR000109                  1998 R01 AI039213                  1998 U01 DK046601                  1998 U01 DK046636                  1998 M01 RR000095                  1998 M01 RR006192                  1998 M01 RR000997                  1998 M01 RR000082                  1998 M01 RR000240</p>	<p>General Clinical Research Center: Diabetes Prevention Trial                  Antibodies to Recombinant Autoantigens - Prediction/Immunogenetics                  Diabetes Prevention Trial -Type 1                  Diabetes Prevention Trial -Type 1                  General Clinical Research Center: Diabetes Prevention Trial                  General Clinical Research Center: Diabetes Prevention Trial                  General Clinical Research Center: Diabetes Prevention Trial                  General Clinical Research Center: Diabetes Prevention Trial                  General Clinical Research Center: Diabetes Prevention Trial                  General Clinical Research Center: Diabetes Prevention Trial</p>
<p><b>One Year Supplements to Ongoing Projects</b>                  Mark Atkinson, <i>University of Florida</i>                  Mark Atkinson, <i>University of Florida</i>                  William Hagopian, <i>Pacific Northwest Research Institute</i>                  Laurence Turka, <i>University of Pennsylvania</i>                  Don Wiley, <i>Children's Hospital (Boston)</i></p>	<p>1998 P01 AI042288                  1998 R01 AI039250                  1998 P51 RR000166                  1998 P01 AI041521                  1998 P01 AI039619</p>	<p>Immune Function and Low Risk Genotypes in IDD                  Mechanisms of Immunotherapy in IDD Prevention Trials                  Controlled Transfer Model for Autoimmune Diabetes                  Costimulation and Cytokines in Tolerance                  MHC Linked Susceptibility to Autoimmunity - Structure and Biology</p>

**GOAL III: DEVELOP CELL REPLACEMENT THERAPY**

<p><b>Beta Cell Biology Consortium (RFA DK01-014)</b>                  Michael German, <i>University of California San Francisco</i>                  Joel Habener, <i>Massachusetts General Hospital</i>                  John Hutton, <i>University of Colorado Health Sciences Center</i>                  Mark Magnuson, <i>Vanderbilt University</i>                  Catherine Verfaillie, <i>University of Minnesota</i></p>	<p>2001 U19 DK061245                  2001 U19 DK061251                  2001 U19 DK061248                  2001 U19 DK042502                  2001 U19 DK061244</p>	<p>Molecular Control of Pancreatic Islet Development                  Restoration of Endocrine Pancreas Function                  Development and Regeneration of the Endocrine Pancreas                  Genes of Pancreas Function and Development                  Characterization of Beta Cell Stem Cells</p>
<p><b>Comprehensive Programs in Beta Cell Biology (RFA DK02-014)</b>                  Vincenzino Cirulli, <i>University of California San Diego</i>                  Roger Davis, <i>University of Massachusetts Medical School</i>                  Peter Dempsey, <i>Pacific Northwest Research Institute</i>                  Kathleen Dunlap, <i>New England Medical Center Hospitals</i>                  Claudia Kappen, <i>University of Nebraska Medical Center</i>                  Jeffrey Pessin, <i>University of Iowa</i>                  Fredric Wondisford, <i>University of Chicago</i></p>	<p>2002 R01 DK063443                  2002 R01 DK063368                  2002 R01 DK063363                  2002 R01 DK063344                  2002 R01 DK063336                  2002 R01 DK063332                  2002 R01 DK063349</p>	<p>Role of Connexins in Beta Cell Development and Function                  Functional Analysis of the Beta Cell                  Endogenous Betacellulin Signaling in Beta Cell Biology                  GABA-B Receptors as Regulators of Islet Biology                  Genome-Wide Discovery of Beta Cell Gene Control Elements                  Beta Cell Insulin Granule Docking, Priming, and Fusion                  Control of Beta Cell Function by Co-Activators</p>

**TABLE A3**

**GOAL III: DEVELOP CELL REPLACEMENT THERAPY** (Continued)

<p><b>Non-Human Primate Immune Tolerance Cooperative Study Group (RFA AI01-006)</b>          Hugh Auchincloss, <i>Massachusetts General Hospital</i>          Bernhard Hering, <i>University of Minnesota</i>          Christian Larsen, <i>Emory University</i>          Judith Thomas, <i>University of Alabama at Birmingham</i></p>	<p>2001 U01 AI051706          2001 U01 DK062932          2001 U19 AI051731          2001 U19 DK057958</p>	<p>Tolerance Induction for Primate Islet Transplantation          Mixed Chimerism in Haploidentical Non-Human Primates          Transplant Tolerance          Preclinical Models of Organ and Cell Transplantation Tolerance</p>
<p><b>Immune Tolerance Network - Islet Transplantation (RFP-NIAID-99-30)</b>          University of California San Francisco</p>	<p>2001 N01 AI015416</p>	<p>Collaborative Network for Clinical Research on Immune Tolerance</p>
<p><b>Islet Cell Resource Centers (RFA RR01-002)</b>          A. Osama Gaber, <i>University of Tennessee Health Sciences Center</i>          Ronald Gill, <i>University of Colorado Health Sciences Center</i>          Mark Hardy, <i>Columbia University of Health Sciences</i>          Bernhard Hering, <i>University of Minnesota</i>          Thalachallour Mohanakumar, <i>Washington University</i>          Ali Naji, <i>University of Pennsylvania</i>          Jo Reems, <i>Puget Sound Blood Center</i>          Camillo Ricordi, <i>University of Miami</i>          Arthur Riggs, <i>Beckman Research Institute</i>          Gordon Weir, <i>Joslin Diabetes Center</i></p>	<p>2001 U42 RR016602          2001 U42 RR016599          2001 U42 RR016629          2001 U42 RR016598          2001 U42 RR016597          2001 U42 RR016600          2001 U42 RR016604          2001 U42 RR016603          2001 U42 RR016607          2001 U42 RR016606</p>	<p>Standardization and Procedure on Islet Isolation          Islet Cell Resources Facility at the University of Colorado          New York Regional Islet Isolation Facility          Human Pancreatic Islet Cell Resources (ICRs)          Human Islet Isolation Program at Washington University          Isolation/Distribution of Human Pancreatic Islets          Human Islet Isolations in Seattle          Islet Cell Resources for Diabetes Research and Treatment          Islet Cell Resources of Southern California          Human Pancreatic Islet Cell Resources</p>
<p><b>Islet/Beta Cell Transplant Registry (RFP NIDDK-00-002)</b>          EMMES Corporation</p>	<p>2001 N01DK012472</p>	<p>Islet/Beta Cell Transplant Registry</p>
<p><b>Islet Encapsulation Research -Pilot and Feasibility Supplements to Existing Centers</b>          John Hutton, <i>University of Colorado Health Sciences Center</i>          Jerry Palmer, <i>University of Washington</i>          Robert Sherwin, <i>Yale University</i>          Donald Steiner, <i>University of Chicago</i></p>	<p>2002 P30 DK057516          2002 P30 DK017047          2002 P30 DK045735          2002 P60 DK020595</p>	<p>Diabetes Endocrinology Research Center          Diabetes Endocrinology Research Center          Diabetes Endocrinology Research Center          Diabetes Research and Training Center</p>
<p><b>Gene Transfer Approaches to Enhance Islet Transplantation (RFA DK02-020)</b>          Mark Catral, <i>Toronto General Hospital</i>          Lieping Chen, <i>Mayo Clinic Rochester</i>          Christiane Ferran, <i>Beth Israel Deaconess Medical Center</i>          Donald Kohn, <i>Children's Hospital (Los Angeles)</i>          Joseph LeDoux, <i>Georgia Institute of Technology</i>          Adrian Morelli, <i>University of Pittsburgh</i>          Alvin Powers, <i>Vanderbilt University</i>          Paul Robbins, <i>University of Pittsburgh</i>          Daniel Salomon, <i>Scripps Research Institute</i>          Sihong Song, <i>University of Florida</i>          Jide Tian, <i>University of California Los Angeles</i>          Zandong Yang, <i>University of Virginia Charlottesville</i></p>	<p>2002 R21 AI055024          2002 R21 AI055028          2002 R21 DK062601          2002 R21 DK062649          2002 R21 DK062616          2002 R21 AI055027          2002 R21 DK062641          2002 R21 AI055026          2002 R21 DK062598          2002 R21 DK062652          2002 R21 AI055025          2002 R21 DK062610</p>	<p>Immunomodulation of Pancreatic Islets by Adenoviral Genes          Novel Strategies to Prevent Islet Transplantation Rejection          Gene Transfer with A20 to Improve Islet Transplantation          Gene Expression in Beta Cells by Lentiviral Vectors          Induction of Stem Cells to Adopt an Endocrine Fate          Dendritic Cells with Galectin-1 to Enhance Islet Grafts          Gene Transfer and Revascularization of Transplanted Islets          Inhibition of NF-KB to Facilitate Islet Transplantation          Lentiviral-Transduced Endothelium for Islet Transplants          Anti-Inflammatory Serpin (AAT and Elafin) Gene Transfers          Genetic Modification of Mouse Islets for Transplantation          Induction of Suppression for Islet Transplantation</p>
<p><b>Imaging Pancreatic Beta Cell Mass, Function, Engraftment, or Inflammation (RFA DK02-002)</b>          Paul Harris, <i>Columbia University Health Sciences</i>          Dixon Kaufman, <i>Northwestern University</i>          Wen-Hong Li, <i>University of Texas SW Medical Center</i>          Anna Moore, <i>Massachusetts General Hospital</i>          Louis Philipson, <i>University of Chicago</i>          Massimo Trucco, <i>Children's Hospital (Pittsburgh)</i></p>	<p>2002 R01 DK063567          2002 R01 DK063565          2002 R01 DK063525          2002 R01 DK063572          2002 R01 DK063493          2002 R01 DK063335</p>	<p>Human Islet Antigen Discovery and Imaging          Bioluminescent Imaging of Pancreatic Islet Transplants          Image Beta Cell Mass and Function in Implants and Pancreas          In Vivo Imaging of Autoimmune Attack in Type 1 Diabetes          Imaging Beta Cell Function with Biosensors          Optical Imaging of Beta Cell Function and Engraftment</p>
<p><b>New Strategies for Treatment of Type 1 Diabetes Mellitus (RFA DK00-001)</b>          Paul Gores, <i>Carolinas Medical Center</i>          Peter Gottlieb, <i>University of Colorado Health Sciences Center</i>          A. Shapiro, <i>University of Alberta</i></p>	<p>2000 R01 DK059070          2000 R01 DK059097          2000 R01 DK059101</p>	<p>Islet Transplantation in Non-Uremic Diabetic Patients          Immunotherapy Trial in New-Onset Type 1 Diabetes          Trial of Anti-TNFalpha in Islet Transplantation</p>
<p><b>Pilot Studies for New Therapies for Type 1 Diabetes and Its Complications (RFA DK99-013)</b>          Geoffrey Block, <i>University of Pittsburgh</i>          George Gittes, <i>New York University School of Medicine</i>          Lawrence Olson, <i>Michigan State University</i>          Vijayakumar Ramiya, <i>Ixion Biotechnology, Inc.</i>          Raymond Steptoe, <i>Walter and Eliza Hall Institute</i>          Hei Sul, <i>University of California Berkeley</i></p>	<p>1999 R21 DK057143          1999 R21 DK057224          1999 R21 DK057173          1999 R21 DK057121          1999 R21 DK057228          1999 R21 DK057217</p>	<p>Bioengineered Primary Islets for Transplantation          Mesenchymal Inducers of Beta Cell Differentiation          Pluripotent Human Pancreatic Ductal Cells          Islets from Islet Progenitor/Stem Cells for Implantation          Proinsulin Gene Transfer Via Bone Marrow to Prevent IDDM          Pref-1 Function in Islet Growth and Differentiation</p>

**TABLE A3**

**GOAL III: DEVELOP CELL REPLACEMENT THERAPY** (Continued)

<p><b>Cellular and Molecular Approaches for Achieving Euglycemia (RFA DK98-007)</b>                  Kenneth Brayman, <i>University of Pennsylvania</i>                  Michael Brownlee, <i>Albert Einstein College of Medicine</i>                  Sylvia Christakos, <i>University of Med/Dnt of New Jersey</i>                  Joanna Davies, <i>Scripps Research Institute</i>                  Herbert Gaisano, <i>University of Toronto</i>                  Lakshmi Gaur, <i>Puget Sound Blood Center and Program</i>                  Ivan Gerling, <i>University of Tennessee</i>                  Marvin Gershengorn, <i>Cornell University of Medical College</i>                  Ronald Gill, <i>University of Colorado Health Sciences Center</i>                  Suzanne Ildstad, <i>Allegheny University of Health Sciences</i>                  Karen Kover, <i>University of Kansas Medical Center</i>                  Fred Levine, <i>University of California San Diego</i>                  Andreas Martin, <i>Mount Sinai School of Medicine</i>                  Albee Messing, <i>University of Wisconsin Madison</i>                  Jerry Nadler, <i>City of Hope Medical Center</i>                  Christopher Newgard, <i>University of Texas SW Medical Center</i>                  Colin Nichols, <i>Washington University</i>                  Camillo Ricordi, <i>University of Miami</i>                  David Rothstein, <i>Yale University</i>                  Thomas Steinberg, <i>Washington University</i></p>	<p>1998 R21 DK055353                  1998 R01 DK055299                  1998 R21 DK055050                  1998 R01 AI045488                  1998 R21 DK055160                  1998 R01 AI045487                  1998 R21 DK055263                  1998 R21 DK055087                  1998 R01 DK055333                  1998 R01 AI045486                  1998 R21 AI045490                  1998 R01 DK055065                  1998 R21 DK055277                  1998 R21 DK055309                  1998 R01 DK055240                  1998 R01 DK055188                  1998 R01 DK055282                  1998 R01 DK055347                  1998 R01 AI045485                  1998 R01 HD037799</p>	<p>Adenoviral Mediated Islet Gene Transfer                  Genetic Engineering of Beta Cells for Transplantation                  Preservation of Beta Cell Function by Calbindin-D28K                  Allograft Induced IL-4 in Pancreas Graft Protection                  SNARE Regulation of B-Cell KCA and SUR Potentiates Secretion                  Induction of Tolerance to Islet Allografts in Primates                  Human Leukocyte Response to Human Islets in SCID mice                  Dynorphin and Beta Cell Sensitization                  T Cell Mediated Injury to Islet Allografts                  Hematopoietic Stem Cell Chimerism to Treat Diabetes                  The Effects of Anti-Rat CD40L on Islet Allograft Survival                  Inhibition of Apoptosis in Pancreatic Beta Cells                  An In Vivo Model of Pancreatic Islet Organoids                  New Method for Purifying Islets from Transgenic Pancreas                  Lipid Mediators in Induced Pancreatic Islet Dysfunction                  Engineering of Immunoprotection in Beta Cell Lines                  Genetic Engineering of Glucose Regulation                  Immunomodulation for Islet Transplantation in Diabetes                  Role of CD45 in Generation of Islet Allograft Tolerance                  P2 Receptors, Extracellular ATP, and Islet Function</p>
<p><b>Beta Cell Proteomics (PAR-00-101)</b>                  Joshua LaBaer, <i>Harvard University Medical School</i></p>	<p>2001 R01 DK061906</p>	<p>Manipulating the Proteome</p>
<p><b>One Year Supplements to Ongoing Projects</b>                  Hugh Auchincloss, <i>Massachusetts General Hospital</i>                  Jeffrey Bluestone, <i>University of Chicago</i>                  Kenneth Polonsky, <i>University of Chicago</i>                  Daniel Salomon, <i>Scripps Research Institute</i>                  Nora Sarvetnick, <i>Scripps Research Institute</i>                  Ming-Jer Tsai, <i>Baylor College of Medicine</i></p>	<p>1998 R01 AI038397                  1998 P01 AI029531                  1998 P01 DK044820                  1998 R01 AI042384                  1998 R01 HD029764                  1998 R37 HD017379</p>	<p>Pathways of Alloreactivity                  Immunomodulation of Transplant Rejection                  Molecular Mechanisms/Beta Cell Dysfunction in Diabetes                  Importance of Islet Structure in Islet Transplantation                  Model of Islet Regeneration and Neogenesis                  In Vitro Expression of Hormone-Regulated Genes</p>

**GOAL IV: PREVENT OR REDUCE HYPOGLYCEMIA IN TYPE 1 DIABETES**

<p><b>DiracNet: A Network to Test Glucose Sensors in Children with Type 1 Diabetes (RFA HD01-009)</b>                  Roy Beck, <i>Jaeb Center for Health Research, Inc.</i>                  Peter Chase, <i>University of Colorado Health Sciences Center</i>                  William Tamborlane, <i>Yale University</i>                  Eva Tsalikian, <i>University of Iowa</i>                  Darrell Wilson, <i>Stanford University</i>                  Tim Wysocki, <i>Nemours Children's Hospital</i></p>	<p>2001 U01 HD041890                  2001 U10 HD041919                  2001 U10 HD041906                  2001 U10 HD041915                  2001 U10 HD041908                  2001 U10 HD041918</p>	<p>Coordinating Center - Glucose Sensors in Type 1 Diabetes                  Glucose Sensors in Children with Type 1 Diabetes                  Yale's Center in the Children's Glucose Sensor Network                  Glucose Sensors and Hypoglycemia in Children with DM                  Near-Continuous Glucose Monitoring in Pediatrics                  Continuous Glucose Sensors in Youth: a Biobehavioral Study</p>
<p><b>Effects of Hypoglycemia on Neuronal and Glial Cell Function (RFA NS02-008)</b>                  James Mandell, <i>University of Virginia Charlottesville</i>                  Jullie Pan, <i>Yeshiva University</i>                  Scott Rivkees, <i>Yale University</i>                  Vanessa Routh, <i>University of Med/Dnt of New Jersey</i>                  Stephen Salton, <i>Mount Sinai School of Medicine</i>                  Dennis Turner, <i>Duke University</i></p>	<p>2002 R21 NS045300                  2002 R21 DK064565                  2002 R21 NS045310                  2002 R01 DK064566                  2002 R01 NS045305                  2002 R21 NS045304</p>	<p>Hypoglycemic Signaling Targets in Astrocytes                  Cerebral Activation in Hypoglycemia and Hyperketonemia                  The Role of Adenosine in Hypoglycemic Brain Injury                  Glucosensing Neurons in Euglycemia, Hypoglycemia, and HAAF                  Mechanisms of Neuronal Hypoglycemic Injury                  Lifespan Neuronal/Glial Metabolism During Hypoglycemia</p>
<p><b>Sensor Development and Validation (RFA EB02-002)</b>                  Mark Arnold, <i>University of Iowa</i>                  David Gough, <i>University of California San Diego</i>                  Myra Lipes, <i>Joslin Diabetes Center</i>                  Garry Steil, <i>Medtronic Minimed</i></p>	<p>2002 R01 DK064569                  2002 R01 DK064570                  2002 R01 DK064568                  2002 R01 DK064567</p>	<p>Continuous Near Infrared Glucose Sensor                  Validation of Long-Term Glucose Sensor in Tissues                  A Cell-Based Glucose Sensing and Insulin Delivery System                  Long Term Glucose Sensing and Physiologic Insulin Delivery</p>

**TABLE A3**

**GOAL IV: PREVENT OR REDUCE HYPOGLYCEMIA IN TYPE 1 DIABETES** (Continued)

<p><b>Understanding Hypoglycemia Unawareness in Patients with Type 1 Diabetes (RFA DK01-031)</b>                  Casey Donovan, <i>University of Southern California</i>                  Rolf Gruetter, <i>University of Minnesota Twin Cities</i>                  Lauren Jacobson, <i>Albany Medical College</i>                  Dianne Lattemann, <i>University of Washington</i>                  Yijun Liu, <i>University of Florida</i>                  S. Ritter, <i>Washington State University</i>                  Elizabeth Seaquist, <i>University of Minnesota</i>                  Harry Shamoon, <i>Yeshiva University</i></p>	<p>2002 R01 DK062471                  2002 R21 NS045519                  2002 R21 DK062442                  2002 R21 DK062446                  2002 R21 NS045518                  2002 R01 NS045520                  2002 R01 DK062440                  2002 R01 DK062463</p>	<p>Portal Vein Glucose Sensors in Hypoglycemia                  NMR Measurements of Human Brain Glycogen Metabolism                  Role of Glucocorticoids in Hypoglycemia Unawareness                  CNS Stress Pathways and the Development of Acute HAAF                  Dynamic FMRI Analyses of Hypoglycemia Unawareness                  Hindbrain Mechanisms of Hypoglycemia Unawareness                  Cerebral Responses to Insulin-Induced Hypoglycemia                  Modulation of Hypoglycemic Counterregulatory Responses</p>
<p><b>Pilot Studies for New Therapies for Type 1 Diabetes and Its Complications (RFA DK99-013)</b>                  David Gough, <i>University of California San Diego</i></p>	<p>1999 R21 DK057109</p>	<p>Key Parameters for Artificial Pancreas Controller</p>
<p><b>Glucose Sensors in the Treatment of Diabetes (RFA DK98-008)</b>                  Mark Arnold, <i>University of Iowa</i>                  Sanford Asher, <i>University of Pittsburgh</i>                  Katherine Crothall, <i>Animas Corporation</i>                  Casey Donovan, <i>University of Southern California</i>                  Dale Drueckhammer, <i>State University of New York Stony Brook</i>                  Johannes Everse, <i>Texas Tech University</i>                  David Gough, <i>University of California San Diego</i>                  Joseph Izatt, <i>Case Western Reserve University</i>                  John Mastrototaro, <i>Minimed, Inc.</i>                  Francis Mousy, <i>University of Connecticut</i>                  Govind Rao, <i>University of Maryland</i>                  Kerstin Rebrin, <i>Minimed, Inc.</i>                  Christopher Saudek, <i>Johns Hopkins University</i>                  Gary Saylor, <i>University of Tennessee</i>                  Binghe Wang, <i>North Carolina State University</i>                  Joseph Wang, <i>New Mexico State University Las Cruces</i>                  George Wilson, <i>University of Kansas Lawrence</i></p>	<p>1998 R21 DK055255                  1998 R01 DK055348                  1998 R01 DK055246                  1998 R01 DK055257                  1998 R21 DK055234                  1998 R21 RR014174                  1998 R01 DK055064                  1998 R21 RR014172                  1998 R01 DK055242                  1998 R01 RR014171                  1998 R01 RR014170                  1998 R01 DK055337                  1998 R01 DK055132                  1998 R21 RR014169                  1998 R21 DK055062                  1998 R01 RR014173                  1998 R01 DK055297</p>	<p>Solid-State Optics for Non-Invasive Glucose Monitors                  Development of (Non) Invasive Real-Time Glucose Sensors                  An Implantable Near IR Glucose Sensor                  Portal Glucosensors in Hypoglycemic Detection                  New Approaches to Fluorescence-Based Glucose Sensors                  Enzyme-Thermistors as Glucose Sensors                  Tissue Response to Implanted Glucose Sensor                  Pathlength-Resolved Non-Invasive Optical Glucose Sensors                  Transdermal Glucose Sensing with Optical Amplification                  Control of Sensor/Tissue Interact for Extended Lifetime                  Protein Engineered Glucose Sensor                  Interstitial Glucose Dynamics Using a Glucose Sensor                  Clinical Research Toward Closed-Loop Insulin Delivery                  Eukaryotic Bioluminescent Integrated Circuit Sensors                  Glucose-Sensitive Artificial Receptors for Insulin                  Oxygen-Independent Interference-Free Glucose Sensors                  Evaluation of a Continuous Glucose Monitoring System</p>
<p><b>Developing New Tools for Detecting and Monitoring Low Blood Glucose for People with Diabetes (PA 99151)</b>                  Robert Langer, <i>Massachusetts Institute of Technology</i>                  Kenneth Ward, <i>National Applied Science</i>                  Suzanne Gebhart, <i>SpectRx, Inc.</i></p>	<p>1999 R08/CCR117792                  1999 R08/CCR017796                  1999 R08/CCR417812</p>	<p>Ultrasound Mediated Transdermal Glucose Monitoring                  Development of a Continuous Hypoglycemia Monitor                  Continuous Interstitial Fluid Glucose Monitoring</p>
<p><b>Development of Surrogate Markers for Clinical Trials: Supplements</b>                  University of Iowa</p>	<p>2001 N01 MH120006</p>	<p>Brain Molecular Anatomy Project (BMAP)</p>
<p><b>One Year Supplements to Ongoing Projects</b>                  Peter Havel, <i>University of California Davis</i>                  Govind Rao, <i>University of Maryland</i></p>	<p>1998 R01 DK050129                  1998 R01 RR010955</p>	<p>ANS Hypoglycemia Induced Glucagon Secretion in Diabetes                  Minimally Invasive Glucose Monitoring</p>

**GOAL V: PREVENT OR REDUCE THE COMPLICATIONS OF TYPE 1 DIABETES**

<p><b>EDIC: Measurement of Cardiovascular Disease</b>                  William Dahms, <i>Case Western Reserve University</i>                  John Lachin, <i>George Washington University</i></p>	<p>1998 N01 DK062203                  1998 N01 DK062204</p>	<p>Coordinating Center - Diabetes Interventions/Complications                  Epidemiology of Diabetes Interventions and Complications</p>
<p><b>EDIC: Uropathy and Autonomic Neuropathy</b>                  William Dahms, <i>Case Western Reserve University</i></p>	<p>1998 N01 DK062203</p>	<p>Coordinating Center - Diabetes Interventions/Complications</p>
<p><b>Studies to Identify Genetic Associations in Patients with Microvascular Complications (FIND)</b>                  EMMES Corporation                  Hanna Abboud, <i>University of Texas Health Sciences Center</i>                  Sharon Adler, <i>Harbor-UCLA Research and Education Institute</i>                  Barry Freedman, <i>Wake Forest University</i>                  Mohammed Saad, <i>University of California Los Angeles</i>                  John Sedor, <i>Case Western Reserve University</i>                  Philip Zager, <i>University of New Mexico Albuquerque</i></p>	<p>2001 N01 EY062112                  2001 U01 DK057295                  2001 U01 DK057249                  2001 U01 DK057298                  2001 U01 DK057303                  2001 U01 DK057329                  2001 U01 DK057300</p>	<p>Clinical Trials and Statistical Study Monitoring and Coordination                  Genetics of Diabetic Nephropathy in Mexican Americans                  Identification of Diabetic Nephropathy Risk Genes                  Renal Failure Genes in the Southeastern U.S.                  Genetics of Diabetic Nephropathy in Hispanics                  Genetic Regulation of Renal Disease Progression                  Zuni Kidney Project- Family Studies</p>



**TABLE A3**

**GOAL V: PREVENT OR REDUCE THE COMPLICATIONS OF TYPE 1 DIABETES** (Continued)

<p><b>Diabetic Macular Edema Clinical Trials Network (RFA EY01-001)</b> Roy Beck, <i>Jaeb Center for Health Research, Inc.</i></p>	<p>2002 U10 EY014231</p>	<p>Diabetic Macular Edema Clinical Research Network</p>
<p><b>Animal Models of Diabetic Complications Consortium (RFA DK01-009 and HL01-010)</b> Erwin Bottinger, <i>Yeshiva University</i> Jan Breslow, <i>Rockefeller University</i> David Clemmons, <i>University of North Carolina Chapel Hill</i> Thomas Coffman, <i>Duke University</i> Willa Hsueh, <i>University of California Los Angeles</i> Donald McClain, <i>University of Utah</i></p>	<p>2001 U01 DK060995 2001 U01 HL070524 2001 R01 HL069364 2001 U01 HL070523 2001 U01 HL070526 2001 U01 HL070525</p>	<p>Mouse Models for Human Diabetic Nephropathy Animal Models of Diabetic Vascular Disease Atherosclerosis in Insulin-Resistant, Hyperlipidemic PTS Duke-UNC-Stanford AMDC Unit Novel Models of Cardiovascular Complications of Diabetes Animal Models of Diabetic Cardiovascular Complications</p>
<p><b>Pilot Trials to Prevent or Slow Progression of Diabetic Nephropathy (RFA DK02-025)</b> Timothy Meyer, <i>Stanford University</i> Kumar Sharma, <i>Thomas Jefferson University</i> Robert Toto, <i>University of Texas SW Medical Center</i></p>	<p>2002 R01 DK063011 2002 R01 DK063017 2002 R01 DK063010</p>	<p>Maximizing the Benefit of Ras Blockade in Diabetic Nephropathy Pirfenidone: Novel Anti-Scarring Therapy for Diabetic Nephropathy Improving Outcomes in Diabetic Nephropathy</p>
<p><b>Surrogate Endpoints for Diabetic Microvascular Complications (RFA DK02-016)</b> Paul Beisswenger, <i>Dartmouth College</i> Andrew Boulton, <i>Victoria University of Manchester</i> Robert Cohen, <i>University of Cincinnati</i> Jose Halperin, <i>Harvard University Medical School</i> George King, <i>Joslin Eye Institute</i> Oliver Lenz, <i>University of Miami</i> Mara Lorenzi, <i>Schepens Eye Research Institute</i> Lois Smith, <i>Children's Hospital (Boston)</i> Kathryn Thrailkill, <i>University of Kentucky</i> Lance Waller, <i>Emory University</i></p>	<p>2002 R01 DK062995 2002 R01 NS046259 2002 R01 DK063088 2002 R01 DK062994 2002 R21 DK063000 2002 R21 DK063083 2002 R01 EY014812 2002 R21 EY014811 2002 R01 DK062999 2002 R21 NS046258</p>	<p>Enzymatic Controls of Nonenzymatic Glycation Non-Invasive Surrogate Markers for Diabetic Neuropathy The Glycosylation Gap and Diabetic Complications Complement in the Vascular Complications of Diabetes Monocyte VEGF and PKC, Markers for Diabetic Complications Clonal Selection in Diabetic Nephropathy Retinal Blood Flow and Microthrombi in Type 1 Diabetes Surrogate Markers for Early Stage Diabetic Retinopathy Matrix Metalloproteinases and Diabetic Nephropathy Assessing Spatial Patterns of Epidermal Nerve Fibers</p>
<p><b>Imaging Early Markers of Diabetic Microvascular Complications in Peripheral Tissues (RFA DK02-001)</b> Abass Alavi, <i>University of Pennsylvania</i> Randall Barbour, <i>SUNY Downstate Medical Center</i> Pierre Carlier, <i>Laboratoire RMN-CEA-AFM</i> George King, <i>Joslin Diabetes Center</i> Jonathan Lindner, <i>University of Virginia Charlottesville</i> Ronald Meyer, <i>Michigan State University</i></p>	<p>2002 R01 DK063579 2002 R21 DK063692 2002 R21 DK063496 2002 R21 DK063511 2002 R01 DK063508 2002 R21 DK063497</p>	<p>FDG-PET Imaging in Complicated Diabetic Foot Functional Imaging of the Vascular Bed NMR of Muscle Perfusion and Oxygenation in Diabetes Retinal Imaging Tests for Microvascular Functions Contrast Ultrasound and Diabetic Microvascular Disease Functional MRI of Diabetic Peripheral Vascular Disease</p>
<p><b>Oral Microbiology/Immunology of Type 1 Diabetes (RFA DE01-001)</b> Ashraf Fouad, <i>University of Connecticut School of Med/Dnt</i> Evanthia Lalla, <i>Columbia University</i> Paul Moore, <i>University of Pittsburgh</i> Maria Ryan, <i>State University of New York Stony Brook</i> Thomas Van Dyke, <i>Boston University</i></p>	<p>2001 R21 DE014476 2001 R21 DE014490 2001 R21 DE014472 2001 R21 DE014491 2001 R21 DE014478</p>	<p>Endodontic Infections in Type 1 Diabetic Hosts Periodontal Microbiota, Serum Antibody Response, and IDDM Microbiology/Immunology of Periodontal Disease in Type 1 Diabetes Host Modulation/Periodontal Therapy Effects on Diabetes Periodontal Inflammation in Type 1 Diabetes</p>
<p><b>Neurobiology of Diabetic Complications (RFA NS00-002)</b> Joseph C. Arezzo, <i>Yeshiva University</i> Thomas K. Baumann, <i>Oregon Health Sciences University</i> Joseph Beverly, <i>University of Illinois</i> Scott T. Brady, <i>University of Texas SW Medical Center</i> Rick Dobrowsky, <i>University of Kansas Lawrence</i> Charlene Hafer-Macko, <i>University of Maryland Baltimore</i> Lynn Heasley, <i>University of Colorado Health Sciences Center</i> William R. Kennedy, <i>University of Minnesota Twin Cities</i> Kathy J. LePard, <i>Midwestern University</i> Jill Lincoln, <i>University of London</i> Charles V. Mobbs, <i>Mount Sinai School of Medicine</i> Hui-Lin Pan, <i>Penn State</i> Marise B. Parent, <i>Georgia State University Research Foundation</i> David C. Randall, <i>University of Kentucky Research Foundation</i> Judith A. Richter, <i>Indiana University</i> Nancy Tkacs, <i>University of Pennsylvania</i> Vickery Trinkaus-Randall, <i>Boston University</i> Jeffrey Twiss, <i>University of California Los Angeles</i></p>	<p>2000 R01 NS041194 2000 R21 NS041157 2000 R01 DK059755 2000 R01 NS041170 2000 R21 DK059749 2000 R01 DK059758 2000 R01 DK059756 2000 R01 NS041163 2000 R21 NS039768 2000 R01 DK058010 2000 R01 NS041183 2000 R21 NS041178 2000 R01 NS041173 2000 R01 NS039774 2000 R21 NS041162 2000 R21 DK059754 2000 R21 DK059753 2000 R21 DK059752</p>	<p>Electrophysiologic Measures in Diabetic Neuropathy Dorsal Root Ganglion as Source of Neuropathic Pain Glucose Mediation of Noradrenergic Activity in VMH Regulation of Fast Axonal Transport Diabetic Neuropathy Role of Caveolin in Schwann Cell Signal Transduction Endothelial Dysfunction in Human Diabetic Neuropathy MAP Kinases as Mediators of Diabetic Neuropathy A Thermal Probe Method for Staging Diabetic Neuropathy Synaptic Transmission in Diabetic Enteric Nervous System Oxidative Stress: Roles in Diabetic Autonomic Neuropathy Autonomic Diabetic Neuropathy in Mice Spinal Plasticity in Diabetic Neuropathic Pain Neurochemical and Behavioral Effects of Hyperglycemia Sympathetic Function in Diabetes Hyperglycemia-Induced Neuronal Sensitization Counterregulatory Failure and the Arcuate Nucleus Role of Growth Factors on Epidermal and Neuronal Injury Neurotrophic Factor Responsiveness in Diabetic Neuropathy</p>

**TABLE A3**

**GOAL V: PREVENT OR REDUCE THE COMPLICATIONS OF TYPE 1 DIABETES** (Continued)

<p><b>Pilot Studies for New Therapies for Type 1 Diabetes and Its Complications (RFA DK99-013)</b>                      Maria Alexander-Bridges, <i>Massachusetts General Hospital</i>                      Deborah Ellis, <i>Wayne State University</i>                      Patrizia Marchese, <i>Scripps Research Institute</i>                      N. Nahman, <i>Ohio State University</i>                      Csaba Szabo, <i>Inotek Corporation</i>                      Benjamin Szwegold, <i>Dartmouth College</i>                      Helen Vlassara, <i>Mount Sinai School of Medicine</i>                      Ian Zagon, <i>Milton S. Hershey Medical Center</i></p>	<p>1999 R21 DK057200                      1999 R21 DK057212                      1999 R21 HL065146                      1999 R21 DK057223                      1999 R21 HL065145                      1999 R21 DK057146                      1999 R21 DK057126                      1999 R21 EY013086</p>	<p>DAF16 Homologues and Mediating Complications of Diabetes Therapy in IDDM Adolescents in Poor Metabolic Control                      Mechanisms of Thrombus Formation in Type 1 Diabetes                      Alpha-Sense of Therapy of Diabetic Glomerulosclerosis                      Poly Ribose Synthetase and Endothelial Dysfunction                      Nonenzymatic Glycation: Enzymatic Mechanism for Control                      Gene Transfer and Diabetic Complications                      Regulation of Corneal Wound Healing in Type 1 Diabetes</p>
<p><b>Neurological Complications of Diabetes (RFA NS99-005)</b>                      Nigel Calcutt, <i>University of California San Diego</i>                      Nicole Gibran, <i>University of Washington</i>                      Rolf Gruetter, <i>University of Minnesota Twin Cities</i>                      Jean Jew, <i>University of Iowa</i>                      Phillip Low, <i>Mayo Clinic Rochester</i>                      Anthony McCall, <i>Oregon Health Sciences University</i>                      Jose Ochoa, <i>Emanuel Hospital and Health Center</i>                      Kaushik Patel, <i>University of Nebraska Medical Center</i>                      Timothy Raabe, <i>St. Mary's University</i>                      Mark Yorek, <i>University of Iowa</i></p>	<p>1999 R01 NS038855                      1999 R01 DK058007                      1999 R21 DK058004                      1999 R01 NS039771                      1999 R01 NS039722                      1999 R01 DK058006                      1999 R01 NS039761                      1999 R01 NS039751                      1999 R21 NS039748                      1999 R01 DK058005</p>	<p>Prosaposin and Prosaptides in Diabetic Neuropathy                      Diabetic Neuropathy: Implications for Wound Repair                      In Vivo Studies of Brain Glycogen in Hypoglycemia                      Diabetic Autonomic Neuropathy and Mitral Valve Dysfunction                      Diabetic Autonomic Neuropathy                      Glucocorticoids, Hypoglycemia, and Brain Glucose Transport                      New Approaches to C Nociceptors in Diabetic Neuropathy                      Altered Nitric Oxide Mechanisms in PVN During Diabetes                      Role of Neuregulin on Axon/Glia Interactions in Diabetes                      Vascular Disease in Diabetic Neuropathy</p>
<p><b>Pathogenesis and Therapy of Complications of Diabetes (RFA DK98-009)</b>                      Evan Abel, <i>Beth Israel Deaconess Medical Center</i>                      Lloyd Aiello, <i>Joslin Diabetes Center</i>                      Mark Alliegro, <i>Louisiana State University</i>                      Karin Bornfeldt, <i>University of Washington</i>                      Marshall Corson, <i>University of Washington</i>                      Arup Das, <i>University of New Mexico Albuquerque</i>                      Eva Feldman, <i>University of Michigan Ann Arbor</i>                      Martin Friedlander, <i>Scripps Research Institute</i>                      Kenneth Gabbay, <i>Baylor College of Medicine</i>                      Gary Gibbons, <i>Brigham and Women's Hospital</i>                      Jonathan Glass, <i>Emory University</i>                      Maria Grant, <i>University of Florida</i>                      Jose Halperin, <i>Harvard University</i>                      William Haynes, <i>University of Iowa</i>                      Cinda Helke, <i>Henry M. Jackson Foundation</i>                      Michael Humphreys-Beher, <i>University of Florida</i>                      Claudia Kappen, <i>Mayo Foundation</i>                      Francis Kappler, <i>Fox Chase Cancer Center</i>                      Alexander Ljubimov, <i>Cedars-Sinai Medical Center</i>                      Jian-Xing Ma, <i>Medical University of South Carolina</i>                      Ramesh Nayak, <i>Tufts University</i>                      Ted Reid, <i>Texas Tech University</i>                      David Sane, <i>Wake Forest University</i>                      Richard Schaeffer, <i>University of Arizona</i>                      Gina Schatteman, <i>University of Iowa</i>                      Richard Spielman, <i>University of Pennsylvania</i>                      James Tiedeman, <i>University of Virginia</i>                      Philip Tsao, <i>Stanford University</i>                      Gordon Williams, <i>Brigham and Women's Hospital</i>                      Douglas Wright, <i>University of Kansas Medical Center</i></p>	<p>1998 R21 HL062886                      1998 R01 EY012603                      1998 R01 EY012602                      1998 R01 HL062887                      1998 R21 HL062885                      1998 R01 EY012604                      1998 R01 NS038849                      1998 R01 EY012599                      1998 R01 DK055137                      1998 R01 HL062884                      1998 R01 NS038848                      1998 R01 EY012601                      1998 R01 DK052855                      1998 R21 NS038846                      1998 R01 NS038845                      1998 R01 DE013290                      1998 R01 HD037804                      1998 R21 DK055079                      1998 R01 EY012605                      1998 R01 EY012600                      1998 R21 EY012607                      1998 R21 NS038847                      1998 R21 HL062891                      1998 R01 DK055151                      1998 R01 DK055965                      1998 R01 DK055227                      1998 R01 EY012606                      1998 R01 HL062889                      1998 R01 HL062888                      1998 R21 NS038844</p>	<p>The Role of GLUT4 in the Pathogenesis of Diabetic Cardiomyopathy                      Systemic VEGF and Diabetic Retinopathy: Clinical Trials                      Control of VEGF-Stimulated Endothelial Proliferation                      Hyperglycemia, Protein Kinases, and Smooth Muscle Growth                      Endothelial-Fibronectin Interactions in Diabetes                      Extracellular Proteinases in Retinal Neovascularization                      Glucotoxicity Mediates Apoptosis in Diabetic Neuropathy                      Cell-Based Ocular Delivery of Anti-Angiogenics for PDR                      Species Susceptibility to Diabetic Complications                      Diabetic Macrovascular Disease: Role of Apoptosis                      Calpains in the Pathogenesis of Diabetic Neuropathy                      Nitric Oxide in the Pathogenesis of Diabetic Retinopathy                      The Role of Complement in the Complications of Diabetes                      Sympathetic Neurovascular Function in Diabetes Mellitus                      Neurotrophins and Visceral Afferent Neurons in Diabetes                      Factor Effects on Oral Complications of Diabetes                      Molecular Mechanisms in Diabetic Embryopathy                      Isolation of a Novel Enzymatic Activity                      Growth-Factor Induced Tenascin-C in Diabetic Retinopathy                      Retinal Capillaries in Diabetic Retinopathy                      Immunogenetic Mechanisms in Diabetic Retinopathy                      Role of Substance P in Diabetes-Impaired Wound Healing                      Role of Vitronectin in the Vascular Complications of Diabetes                      VEGF-Induced Modulation of Endothelial Structure and Function                      Adult Angioblasts in Vascular Maintenance and Repair                      Genetic Studies of Diabetic Nephropathy                      Role of Vascular Autoregulation in Diabetic Retinopathy                      Signaling Mechanisms in Glucose-Induced MCP-1 Expression                      Mechanisms Underlying Cardiovascular Risks in Diabetes                      GDNF and Nociceptive Primary Sensory Neurons in Diabetes</p>
<p><b>Development of Clinical Markers for Kidney Disease: Supplements</b>                      Erwin Bottinger, <i>Yeshiva University</i>                      Alfred George, <i>Vanderbilt University</i>                      Steven Gullans, <i>Brigham and Women's Hospital</i>                      Raymond Harris, <i>Vanderbilt University</i>                      Arthur Matas, <i>University of Minnesota</i>                      Richard Quigg, <i>University of Chicago</i>                      John Sedor, <i>Case Western Reserve University</i></p>	<p>2001 U24 DK058768                      2001 U24 DK058749                      2001 U24 DK058849                      2001 P50 DK039261                      2001 P01 DK013083                      2001 U24 DK058820                      2001 P50 DK054178</p>	<p>Albert Einstein Biotechnology Center                      Vanderbilt NIDDK Biotechnology Center                      DNA Microarray Biotechnology Center                      Biology of Progressive Destruction                      Organ Transplantation in Animals and Man                      Massively Parallel Gene Expression Analysis                      CWRU O'Brien Renal Research Center</p>

**TABLE A3**

**GOAL V: PREVENT OR REDUCE THE COMPLICATIONS OF TYPE 1 DIABETES** (Continued)

<b>Development of Surrogate Markers for Clinical Trials: Supplement</b> Christopher Bradfield, <i>University of Wisconsin</i>	2001 R01 ES005703	Characterization of the AH Receptor Signaling Pathway
<b>One Year Supplements for Ongoing Projects</b> Robert Eckel, <i>University of Colorado Health Sciences Center</i> Martin Friedlander, <i>Scripps Research Institute</i> Anthony Iacopino, <i>Texas A &amp; M Baylor College of Dentistry</i> Timothy Kern, <i>Case Western Reserve University</i> George King, <i>Joslin Diabetes Center</i> Trevor Orchard, <i>University of Pittsburgh</i> Ann Schmidt, <i>Columbia University</i> William Tamborlane, <i>Yale University</i> Russell Tracy, <i>University of Vermont and St. Agric College</i>	1998 R01 DK042266 1998 R01 EY011254 1998 R29 DE011553 1998 R01 EY000300 1998 R01 EY005110 1998 R01 DK034818 1998 R01 DE011561 1998 R01 HD030671 1998 R01 HL058329	Nutrition, Lipoprotein Lipase, and Body Weight Regulation Integrins and Ocular Angiogenesis Impaired Wound Signaling in Diabetic Periodontitis Diabetic Retinopathy Cell Biology Approach to Diabetic Retinopathy Epidemiology of Diabetic Complications Glycation, Receptors, Cytokines in Periodontal Disease Effects of Puberty on Metabolism and Body Composition Epidemiology of Impaired Coagulant Balance in Diabetes

**GOAL VI: ATTRACT NEW TALENT TO RESEARCH ON TYPE 1 DIABETES**

<b>Training Programs in Diabetes Research for Pediatric Endocrinologists (RFA DK02-024)</b> Silva Arslanian, <i>Children's Hospital (Pittsburgh)</i> Morey Haymond, <i>Baylor College of Medicine</i> Georgeanna Klingensmith, <i>University of Colorado Health Sciences Center</i> Joseph Majzoub, <i>Joslin Diabetes Center</i> Charles Stanley, <i>Children's Hospital (Philadelphia)</i> William Tamborlane, <i>Yale University</i> Neil White, <i>Washington University</i>	T32 DK063686 2003 K12 DK063704 T32 DK063873 2002 K12 DK063691 T32 DK063687 2002 K12 DK063722 T32 DK063702 2002 K12 DK063696 T32 DK063688 2002 K12 DK063682 T32 DK063703 2002 K12 DK063709 T32 DK063706 2003 K12 DK063683	Research and Academic Training in Pediatric Diabetes Academic Career Development in Pediatric Diabetes Baylor Pediatric Diabetes Research Training Program Baylor Mentored Diabetes Investigator Award Training Program in Diabetes Research Diabetes Research for Pediatric Endocrinologists Training Grant in Diabetes for Pediatric Endocrinologists Career Development in Diabetes for Pediatric Endocrinologists Ped Endocrine Fellowship Training in Diabetes Research Ped Endocrine Career Development in Diabetes Research Training in Pediatric Endocrinology/Diabetes Research Pediatric Endocrine/Diabetes Physician Scientists Fellowship Training in Pediatric Diabetes of WUMS Career Development in Pediatric Diabetes of WUMS
<b>Innovative Partnerships in Type 1 Diabetes (RFA DK02-023)</b> Pamela Carmines, <i>University of Nebraska Medical Center</i> Alexander Chervonsky, <i>The Jackson Laboratory</i> Craig Crews, <i>Yale University</i> Maria Grant, <i>University of Florida</i> Wayne Hancock, <i>Children's Hospital (Philadelphia)</i> William Langridge, <i>Loma Linda University</i> Sigurd Lenzen, <i>Hanover Medical School</i> Diane Mathis, <i>Joslin Diabetes Center</i> Jaime Modiano, <i>AMC Cancer Research Center</i> Marcus Peter, <i>University of Chicago</i> Alvin Powers, <i>Vanderbilt University</i> Marian Rewers, <i>University of Colorado Health Sciences Center</i> Alexander Rudensky, <i>University of Washington</i> Doris Stoffers, <i>University of Pennsylvania</i> Michael Uhler, <i>University of Michigan Ann Arbor</i> Elena Zhukova, <i>University of California Los Angeles</i>	2002 R21 DK063416 2002 R21 DK063452 2002 R21 DK063404 2002 R21 EY014818 2002 R21 DK063591 2002 R21 DK063576 2002 R21 AI055464 2002 R21 DK063660 2002 R21 DK063410 2002 R21 AI055465 2002 R21 DK063439 2002 R21 AI055466 2002 R21 AI055463 2002 R21 DK063467 2002 R21 DK063340 2002 R21 DK063607	Renal Cortical Oxidative and Nitrosative Stress in IDDM Role of Innate Immunity in Type 1 Diabetes Pancreatic Stem Cell Induction by Small Molecules CXCR4/SDF-1 Axis in Proliferation of Diabetic Retinopathy Modulation of Chemokine-Dependent Islet Injury Vaccinia Virus Vaccine for Type 1 Diabetes Pathophysiological and Genetic Characterization of IDDM Rats Diabetes Susceptibility Genes through Zebrafish Genetics Role of Negative Regulation in Development of Diabetes Fas Internalization and Beta Cells Molecular Determinants of Vascularization in Islets Viral Triggers of Type 1 Diabetes Role of Cathepsins S, L, and B in Type 1 Diabetes cAMP Signaling in the Pancreatic Beta Cell Postgenomic Approaches to Diabetic Complications Models of Insulin Production in Enteroendocrine Cells
<b>Bench to Bedside Research on Type 1 Diabetes (RFA DK02-022)</b> Christophe Benoist, <i>Thermal Technologies, Inc</i> David Bleich, <i>Beckman Research Institute</i> Michael Clare-Salzler, <i>University of Florida</i> C. Fathman, <i>Stanford University</i> Peter Gottlieb, <i>University of Colorado Health Sciences Center</i> Zhiguang Guo, <i>University of Minnesota Twin Cities</i> Kevin Lemley, <i>Stanford University</i> Jerry Nadler, <i>University of Virginia Charlottesville</i> Gerald Nepom, <i>Virginia Mason Research Center</i> David Sachs, <i>Massachusetts General Hospital</i> Massimo Trucco, <i>Children's Hospital (Pittsburgh)</i>	2002 R21 AI055467 2002 R21 DK063351 2002 R21 DK063422 2002 R21 AI055468 2002 R21 DK063518 2002 R21 AI055469 2002 R21 DK063456 2002 R21 DK063521 2002 R21 DK063423 2002 R21 DK063503 2002 R21 DK063499	High Sensitivity Detection of Autoimmune T Cells in Type 1 DM Prevention of Type 1 Diabetes with MMP Inhibitors Dendritic Cells and the Prevention of Type 1 Diabetes Adoptive Cellular Gene Therapy in Type 1 Diabetes Human TCR/HLA Transgenic Mice to Prevent Type 1 Diabetes A Strategy to Cure Type 1 Diabetes Urinary Podocyte Excretion Using FACS Methodology New Anti-Inflammatory Agents to Prevent Damage to Islets Treatment of Type 1 Diabetes with hGAD65 Altered Peptide Ligand Islet-Kidney Transplants for Treatment of Diabetic ESRD Gene-Engineered Dendritic Cell Therapy for Diabetics

**TABLE A3**

**GOAL VI: ATTRACT NEW TALENT TO RESEARCH  
ON TYPE 1 DIABETES** (Continued)

<b>Phased Innovation Partnerships - Supplements to Centers</b>		
Yaakov Barak, <i>University of Massachusetts Medical School</i>	2001 P30 DK032520	PPAR Gamma KO and Insulin Resistance
Giacomo Basadonna, <i>Yale University</i>	2001 P30 DK045735	Glucose Responsive Transgene
James Callis, <i>University of Washington</i>	2001 P30 DK017047	Islet Purification
Shaoping Deng, <i>University of Pennsylvania</i>	2001 P30 DK019525	Gene Therapy with PDX
Denise Faustman, <i>Massachusetts General Hospital</i>	2001 P30 DK057521	TNF Apoptosis
Eva Feldman, <i>University of Michigan Ann Arbor</i>	2001 P60 DK020572	Postgenomic Approaches to Complications
Yang-Xin Fu, <i>University of Chicago</i>	2001 P60 DK020595	Lymphotoxin
Mark Geraci, <i>University of Colorado Health Sciences Center</i>	2001 P30 DK057516	RNA Profile of Islet Development
Wouter Hoff, <i>University of Chicago</i>	2001 P60 DK020595	Glucose Sensing Fusion Proteins
Shin-Ichiro Imai, <i>University of Washington</i>	2001 P30 DK017047	Sir2a in Beta Cell Differentiation
Klaus Kaestner, <i>University of Pennsylvania</i>	2001 P30 DK019525	Islet Stem Cells
Myra Lipes, <i>Joslin Diabetes Center</i>	2001 P30 DK036836	Optimize Gene Expression in Surrogate Beta Cells
Diane Mathis, <i>Joslin Diabetes Center</i>	2001 P30 DK036836	Imaging Inflammation
Ruslan Medzhitov, <i>Yale University</i>	2001 P30 DK045735	Innate Immunity in Type 1 Diabetes
Mark Nicolls, <i>University of Colorado Health Sciences Center</i>	2001 P30 DK057516	Proteomics and Transplantation
William Osborne, <i>University of Washington</i>	2001 P30 DK017047	Glucose Regulated Insulin Delivery
Sunhee Park, <i>University of Massachusetts Medical School</i>	2001 P30 DK032530	ART2 Ligands
Alvin Powers, <i>Vanderbilt University</i>	2001 P60 DK020593	In Vivo Assessment of Transplanted Islets
Alexander Rudensky, <i>University of Washington</i>	2001 P30 DK017047	Cathepsins
Jaromir Ruzicka, <i>University of Washington</i>	2001 P30 DK017047	GAD Assay
Harry Shamoon, <i>Yeshiva University</i>	2001 P60 DK020541	Liver Glycogen Metabolism/Hypoglycemia
Li Wen, <i>Yale University</i>	2001 P30 DK045735	Dendritic Cell Therapy
Burton Wice, <i>University of Washington</i>	2001 P30 DK017047	Gut Stem Cells
John Wiley, <i>University of Michigan Ann Arbor</i>	2001 P60 DK020572	Neuropathy
Kelvin Yamada, <i>University of Washington</i>	2001 P30 DK017047	Hypoglycemia