

SYNERGY: Dartmouth CTSA Resources and Facilities

Resource Name	Resource Provider Institution (as listed in eRA) ¹	eRA Institutional Profile No. ¹	Institution EIN or UEI Number ¹	Institution Role ²	Support Type ³	Element B: Strategic Management ⁴	Element C: Training & Outreach ⁴	Element D: CTS Resources & Pilots ⁴	Element E: CTS Research Program ⁴
Brief Description (<i>Italics denotes SYNERGY-specific role</i>)									
Office of Research Operations (ORO)	D-Hitchcock Clinic	10051750	22-2715483	Applicant	A,B	yes	yes	yes	yes
Supports the institution's mission of advancing health through research by providing management and administration of sponsored projects through all phases of the grant and contract life cycle. Divisions include Pre-Award, Post-Award, Human Subjects, Research Quality/Safety, Clinical Trials Office, Research Nursing, Research Informatics. <i>The ORO will serve as the nexus of activities for the Resources and Services module, D1. It is led by Dr. Bernstein, lead SYNERGY PI, and Dr. Vance, Co-Director of module D1. ORO's Clinical Trials Office is currently led by Monica Polk, DNP, MBA, RN, who is transitioning to become SYNERGY's Executive Director. The CTO leadership position will be filled by another individual.</i>									
Center for Advancing Rural Health Equity (CARHE)	D-Hitchcock Clinic	10051750	22-2715483	Applicant	A	yes	yes	yes	yes
This Center is the nexus for Dartmouth Health's population health and community engagement activities. It partners with local nonprofits, FQHCs and other clinics to elevate community voices in our research and outreach activities. <i>Center Director Sally Kraft, MD, is a member of the Community Engagement Team in Element C, and CARHE will assist in designing and conducting the engagement 'studios.'</i>									
Dartmouth Health Biorepository (DH-Biorep)	D-Hitchcock Clinic	10051750	22-2715483	Applicant	B	yes	-	yes	-
An institutional resource collaboratively run by the Office of Research Operations and the Department of Pathology and Laboratory Medicine that provides services in support of investigators and in alignment with Institutional Review Board (IRB)-approved protocols including clinical trials, industry-sponsored, and internal scientific investigations.									
Biomedical NMR Research Center	D-Hitchcock Clinic	10051750	22-2715483	Applicant	B	-	-	yes	-
The Biomedical NMR Research Center houses a 7T horizontal bore Varian MR scanner and a 9.4T horizontal bore Varian MR scanner (located in the Borwell building).									
Center for Surgical Innovation (CSI)	D-Hitchcock Clinic	10051750	22-2715483	Applicant	B	-	yes	yes	-
The CSI is a 12,000-square-foot facility adjacent to the Advanced Imaging Center and Department of Radiology on the DHMC campus, is equipped with two fully equipped operating rooms with intraoperative MRI and CT machines that can move in and out of its operating rooms. Used to rapidly develop, test and validate new surgical tools and techniques. Provides tools to pursue innovation, receive early guidance and mentoring for new ideas, to grow pilot projects into research programs. <i>Co-directed by SYNERGY PI Dr. Paulsen.</i>									
Clinical Research Unit (CRU)	D-Hitchcock Clinic	10051750	22-2715483	Applicant	A,B	yes	yes	yes	-
CRU is a fully equipped outpatient research support unit that offers investigators a full array of services and training for the conduct of clinical research, including study preparation and oversight, use of study space and research personnel; offers study procedures (e.g., phlebotomy, drug administration, case report form completion, etc.) and sample processing laboratory services (e.g., sample preparation, packaging, shipping, and storage). <i>The CRU Director is Jami Wilson, RN, of the ORO.</i>									
ORO Informatics Service Center	D-Hitchcock Clinic	10051750	22-2715483	Applicant	A,B	yes	yes	yes	yes
Offers clinical and translational investigators support on informatics tools for cohort discovery, data integration, data management, and text mining and visual analytics, provides consultative services on integration of data systems and on procedures for research data security, including maintaining and providing access to resources for clinical and translational research, including REDCap. <i>Led by Dr. Burdick, DH Associate Chief Research Officer for Informatics and Leader of the Health Informatics module D3.</i>									

Dana Biomedical and Matthews-Fuller Libraries	D-Hitchcock Clinic	10051750	22-2715483	Applicant	B	yes	yes	yes	yes
Houses a collection of approximately 90,000 book volumes, 100,000 serial volumes, and about 4,800 digital biomedical journals are available via the Biomedical Libraries Web.. Additionally, through the Research Collaborator position, access to all Mayo Clinic libraries are available both in-person and electronically. The library contains electronic tools, and full-text resources that are available 24/7 through secure connection to the Mayo VPN network, offers online training, expert literature research, interlibrary loans, electronic document delivery and other specialized assistance without charge to faculty. <i>Libraries Director Stephanie Kerns, MLS, is a member of SYNERGY's Internal Advisory Committee.</i>									
Dartmouth Center for Health and Aging	D-Hitchcock Clinic	10051750	22-2715483	Applicant	B	-	yes	yes	yes
The Center encompasses three missions of Academic Geriatrics including Research, the Aging Resource Center, and the Northern New England Geriatric Education Center. It provides free-of-charge health education classes, resource information, community outreach, and support to older adults and their families.									
Advanced Imaging Center (AIC)	D-Hitchcock Clinic	10051750	22-2715483	Applicant	B	yes	yes	yes	-
The Center is focused primarily on MRI research while maintaining capability to perform clinical exams. Offers PRISMA 3-Tesla Research MRI scanner use, which allows this facility to provide a full range of MR imaging including structural, functional, spectroscopy, DTI, perfusion, dynamic contrast enhanced and vascular imaging. Allows support of all types of MRI research including human, animal, and phantom studies. Additionally offers a full range of peripheral research equipment including patient monitoring, power injector, stimulus delivery and recording system and back projection video. <i>Directed by SYNERGY PI Dr. Paulsen; SYNERGY's imaging-focused translational bioengineering research will be conducted here.</i>									
Center for Learning and Professional Development	D-Hitchcock Clinic	10051750	22-2715483	Applicant	B	yes	yes	yes	-
Offers diverse and innovative learning opportunities to enable health care professionals to maintain and improve knowledge, skills, and behaviors. Serves as a source of lifelong learning to members of healthcare teams who seek educational support in an ever-changing clinical environment in order to achieve enhanced outcomes for patients in their care. Includes SIM Center with services and facilities for multidisciplinary experiential learning, a place to acquire technical proficiency, knowledge, confidence, attitudes, and team skills to continue the journey to safer practice and excellence in patient care. <i>CLPD member Molly Paturzo, MEd, is a member of the Workforce Development module's Education and Training Committee.</i>									
The Value Institute	D-Hitchcock Clinic	10051750	22-2715483	Applicant	B	yes	yes	yes	yes
Leads all quality improvement and value creation initiatives at Dartmouth Health. Draws on established process improvement methodologies. Possesses extensive experience utilizing the DMAIC roadmap in complex academic medical center environment, trained over 4,000 professionals. Implements Greenbelt and Yellowbelt projects. <i>Led by Carol Barsky, MD, MBA, Chief Quality and Value Officer and a member of SYNERGY's Internal Advisory Committee. Other members of the Value Institute with roles in SYNERGY include Brant Oliver, PhD, MS, MPH, RN, Tina Foster, MD, MPH, MS, and Samuel Shields, MBA, MHCDS.</i>									
Hitchcock Foundation	D-Hitchcock Clinic	10051750	22-2715483	Applicant	B	-	-	yes	-
Aids and advances the study and investigation of human diseases and injuries; promotes medical, surgical, scientific learning skills, education and investigation; engages and assists in medical, surgical and scientific research. <i>Will conduct joint RFAs with SYNERGY's Pilot module D2. Foundation Board member Dr. Oliver is part of Element E's research team.</i>									
Clinical Pharmacology (CP)	Dartmouth College	2021601	EB8ASJBCF ER9	Partner	N/A	yes	yes	yes	
It supports investigators in the design, analysis, and interpretation of clinical pharmacology objectives in preclinical and clinical studies, including chemoprevention and epidemiological studies. In addition to the biorepository function of our resource, we also have bioanalytical hardware, computer hardware, and state-of-the-art commercial software programs for application to individual and population-based pharmacokinetic and pharmacodynamics modeling, and modeling in vitro and in vivo combination drug effects. <i>This service's Director, Lionel Lewis, MD, MA, is a member of SYNERGY's Hub Liaison Team and Education and Training Committee.</i>									
Genomics and Molecular Biology Resource (GMBSR)	Dartmouth College	2021601	EB8ASJBCF ER9	Partner	N/A	-	yes	yes	yes

Provides technologies that enable profiling of gene expression, miRNA, CpG Island, and CGH on a whole-genome scale, and provides high-quality genomics and microarray data. The Molecular Biology Section provides DNA fragment analysis, qPCR, Sanger sequencing and Nano String Technology. The Speed Congenic Service provides expert advice on mouse speed congenic development, mouse genetic background analysis and mouse genetic mapping.

Immune Monitoring and Flow Cytometry (IMFC)	Dartmouth College	2021601	EB8ASJBCF ER9	Partner	N/A	-	yes	yes	-
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The IMFC Resource provides multiple services including isolation and cryopreservation of PBMCs and plasma/serum for clinical trials, as well as a spectrum of immunoassays, and can develop customized immunoassays. The lab also provides dedicated equipment such as a cell sorter, flow cytometers, ELISPOT reader, Bio-Plex array reader, and RoboSep, and provides support for experimental design, analysis, and interpretation and offer a quarterly Flow Cytometry course.

Irradiation, Pre-clinical Imaging, and Microscopy (IPIM)	Dartmouth College	2021601	EB8ASJBCF ER9	Partner	N/A	-	yes	yes	-
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IPIM assists investigators in radiation treatment planning and delivery of ionizing irradiation to cells, rodents, large animals and spontaneous animal tumors. Pre-clinical Imaging provides technologies for non-invasive, whole-animal imaging of rodents used in preclinical research studies. The Microscopy Section provides access to point scanning confocal microscopy, conventional bright field and fluorescence light microscopy, and image analysis resources. The Electron Microscope Facility provides scanning and transmission electron microscopy, micro-Raman confocal light microscopy and scanned probe microscopy. These facilities provide training for operation of the microscopes.

Trace Element Analysis (TEA)	Dartmouth College	2021601	EB8ASJBCF ER9	Partner	N/A	-	-	yes	-
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The TEA Resource specializes in low-level trace metal analysis and speciation in environmental and biological samples. We use inductively coupled plasma mass spectrometry (ICP-MS) for metals analysis and several "hyphenated" techniques that couple instruments together for speciation analyses of water, soil and biological tissue samples.

Center for Implementation Science	Dartmouth College	2021601	EB8ASJBCF ER9	Partner	N/A	yes	yes	yes	yes
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Speeds the impact of discovery and translates new knowledge into practice and improved population health. Connects researchers to critical resources, funding opportunities, technologies, research training, and expertise; helps investigators advance research and efficiently translate discoveries into improved population health. Building on long-standing collaborations in the neighboring states of Vermont and Maine and brings its expertise to bear on the challenges facing our own rural population and collaborates with other CTSA hubs to serve rural America more broadly. *The Center's Director, Jeremiah Brown, PhD, is a member of SYNERGY's Internal Advisory Committee.*

Tech Transfer Office	Dartmouth College	2021601	EB8ASJBCF ER9	Partner	N/A	yes	yes	yes	
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Serves as a focal point of interaction between industry and academic research on Dartmouth campus by transferring technology, originated in the College and its professional schools, to the private sector for the benefit of the general public and by contributing to the educational, research and public service missions of Dartmouth College. *Center Director Kim Rosenfield, JD, is a member of the Hub Liaison Team.*

Susan and Richard Levy Health Care Delivery Incubator	Dartmouth College	2021601	EB8ASJBCF ER9	Partner	N/A	-	-	yes	yes
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Supports the development of innovative health care delivery solutions that are nimble and scalable. Develops and tests health care delivery interventions at Dartmouth Health to improve care experiences with patients and providers. *Co-directed by Amber Barnato, MD, MPH, MS, a member of SYNERGY's Internal Advisory Committee, and Samuel Shields, MBA, MHCDS, a member of the Strategic Management Element B. The Incubator will issue coordinated RFAs for pilots with SYNERGY.*

Cystic Fibrosis Care Center/Research Center	Dartmouth College	2021601	EB8ASJBCF ER9	Partner	N/A	-	yes	yes	-
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The CF-BBC is a shared-use facility providing biologically-driven data science expertise to enhance the ability of CF researchers to harness big data following the principles of Open Science. Collaborates across the entire life cycle of projects—from design and interpretation of preliminary experiments, development of hypotheses, and design of high-throughput experiments to iterative interpretation of results, drafting of figures and tables, submission of data to repositories, and manuscript preparation and support for grant applications. Provides expert-level bioinformatics and biostatistical support to CF scientists at Dartmouth, our collaborating institutions, and peer P30 CF Centers.

Institute for Biomolecular Targeting	Dartmouth College	2021601	EB8ASJBCF ER9	Partner	N/A	-	yes	yes	-
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Explores the operation and control phosphorylation and protein-protein interaction networks, conformational switches, microRNA regulatory pathways, and intracellular trafficking and degradation machineries, seek new therapeutic targets for brain cancer, colon cancer, pancreatic cancer, airway infection, and inflammation, integrate insights from protein

biochemistry and engineering, biophysics, high-resolution microscopy, and chemical, structural and computational biology. *Led by Dean Madden, PhD, Dartmouth's Vice Provost for Research and the Chair of SYNERGY's Executive Oversight Board.*

Center for Technology and Behavioral Health (CTBH)	Dartmouth College	2021601	EB8ASJBCF ER9	Partner	N/A	yes	yes	yes	yes
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The center focuses on the development, evaluation, and implementation of technology- based therapeutic tools targeting behavioral health. Comprised of an interdisciplinary team of leaders in behavioral science and technology, CTBH aims to draw on the dynamic synergy between innovation, rigorous evaluation, and strategic dissemination to lead transformations in delivery of evidence-based behavioral health care using technology. *Center Director Lisa Marsch, PhD, is a member of the Health Informatics module D3.*

Center for Comparative Medicine and Research (CCMR)	Dartmouth College	2021601	EB8ASJBCF ER9	Partner	N/A	yes	yes	yes	-
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Provides high quality, cost-effective animal husbandry, administrative, and research support for animal care and use. Their goal is to facilitate research and teaching at Dartmouth while maintaining the highest quality of animal care. Vivaria and animal lab space are located at the Hanover and Lebanon campuses of Dartmouth College and Dartmouth Health. *Center Director P. Jack Hoopes, DVM, PhD is a member of the Hub Liaison Team.*

Center of Molecular Epidemiology	Dartmouth College	2021601	EB8ASJBCF ER9	Partner	N/A	-	yes	yes	-
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This Center is an NIGMS-supported COBRE that trains investigators in environmental epidemiology, identifying early indicators of disease pathogenesis, and exploring pathways of disease etiology and progression. It is a national leader in the field. Numerous Dartmouth faculty trained in this Center, including several members of SYNERGY: Drs. Hassanpour, Christensen, Gilbert-Diamond, Lewinson, J. Brown. *Center Director Margaret Karagas, PhD is a member of SYNERGY's Internal Advisory Committee.*

Center for Quantitative Bio- Genomics/Single cell genomics	Dartmouth College	2021601	EB8ASJBCF ER9	Partner	N/A	yes	yes	yes	-
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The overall goal of the SCG COBRE is to develop a centralized resource within the CQB to support individual project leaders and the Dartmouth community. Its role is to implement, maintain, and improve upon the technologies required to conduct SCG experiments in a rigorous and quality controlled manner. The SCG Core will work directly with COBRE leadership, project leaders, mentors, and investigators to design robust experiments and will implement stringent quality control and sample tracking methodologies. *Center Director Michael Whitfield, PhD, is a member of SYNERGY's Internal Advisory Committee.*

Center for Program Design and Evaluation	Dartmouth College	2021601	EB8ASJBCF ER9	Partner	N/A	yes	yes	yes	yes
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Specializes in mixed methods evaluation and program design. Assists organizations of all types due to its wide span of expertise. Provides effective design and comprehensive, accurate and actionable feedback to help programs achieve their goals, with timely services and products to advance partner's understanding, learning and improvement. *CPDE Director Rebecca Butcher, MS, MPH, is leading the evaluation component of SYNERGY.*

NNE CO-OP PBRN (Northern New England CO-OP Practice- Based Research Network)	Dartmouth College	2021601	EB8ASJBCF ER9	Partner	N/A	yes	yes	yes	yes
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Focused on health care improvements in the local communities and the wellbeing of the local health care providers through community engagement and clinical research. Works with local clinicians and community practices to translate research questions into research projects. *Likely to play a key role in SYNERGY's pilot program and later Element E studies. SYNERGY Health Informatics Leader Dr. Burdick also leads research informatics for the CO-OP.*

GrantGPS	Dartmouth College	2021601	EB8ASJBCF ER9	Partner	N/A	-	yes	yes	-
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Helps catalyze scholarships for researchers of all ranks and disciplines. Offers grant writing workshops, external reviews of grant applications, coordinates application processes, offers editing, and assists with identifying funding opportunities. *Trainees in SYNERGY's Workforce Development module and the K12 will use GrantGPS services.*

Dartmouth Institute Data and Analytics Core (DAC)	Dartmouth College	2021601	EB8ASJBCF ER9	Partner	N/A	-	yes	yes	yes
This Core is dedicated to improving value-driven health care through innovative, efficient, and inter-operable “Big Data” translation solutions for Dartmouth College faculty leading health services research projects; maintains an extremely secure environment for health care datasets provided to Principal Investigators by the U.S. Centers for Medicare and Medicaid Services, state governments, and other organizations under data use agreements and licenses. The DAC is home to the Dartmouth Atlas. <i>SYNERGY PI Dr. Tosteson has worked extensively with DAC data, which will likely be used by some Pilot module awardees.</i>									
The Dartmouth College Ethics Institute	Dartmouth College	2021601	EB8ASJBCF ER9	Partner	N/A	-	yes	yes	-
This is a group of over 150 Dartmouth faculty and administrators with interests in applied and professional ethics ranging from medical, business, legal and engineering ethics, to the ethics of teaching and research. The Ethics Institute organizes seminars, forums, and task force meetings to discuss, research and provide education on cutting-edge ethical issues. It maintains a lending library and offers mediation services, among other programs.									
Dartmouth Research Computing	Dartmouth College	2021601	EB8ASJBCF ER9	Partner	N/A	-	yes	yes	yes
Facilitates and enables the advancement of research by providing leading-edge computing services. gives researchers the ability to work with a large volume of data and run complex, processing-intensive programs, offers consulting, programming and software development, supports applications for Bioinformatics, Chemistry, Mathematics, Statistics, Data Visualization. <i>Works closely with Dr. Burdick and SYNERGY Informatics module members.</i>									
Rural Health Resource Center	WRJ VA Medical	2900001	DKL6K7KWK AM5	Collaborator	N/A	yes	yes	yes	-
Included field based satellite offices serving as hubs of rural health research, innovation and dissemination. The mission is to improve understanding of challenges faces by Veterans living in rural areas, to identify disparities and to formulate programs to enhance the delivery of health care in rural areas to this group. <i>Bradley (Vince) Watts, MD, leads the center and is a member of SYNERGY's Internal Advisory Committee. Some SYNERGY-supported pilot studies are likely to be run out of this center.</i>									
National Center for PTSD	WRJ VA Medical	2900001	DKL6K7KWK AM5	Collaborator	N/A	-	yes	yes	-
The mission is to advance the clinical care and social welfare of America's Veterans and others who have experienced trauma, or who suffer from PTSD, through research, education, and training in the science, diagnosis, and treatment of PTSD and stress-related disorders. Serves as a world's leading research and educational center of excellence on PTSD, facilitates rapid translation of science into practice using the latest research findings.									
Northern New England Center for Translational Research Network (NNE-CTR)	MaineHealth UVM	2130202 8738101	01-0238552 066811191	Collaborator	N/A	yes	yes	yes	yes
Supports research impacting the health and healthcare of our region; offers financial and research-related resources for investigators and community members; serve as a bridge connecting researchers, clinicians, and interested community members with the resources they need to successfully pursue meaningful and impactful clinical, translational, and community health projects. <i>Provides leadership for SYNERGY on the Internal Advisory Committee, opportunities for joint pilot RFAs, and training opportunities.</i>									
Laboratory for Clinical Genomics and Advanced Technologies (CGAT)	Dartmouth College	2021601	EB8ASJBCF ER9	Partner	A	-	-	yes	yes
CGAT offers a diverse spectrum of clinical tests for the assessment of DNA and RNA within the areas of genetics, hematopathology, infectious diseases, oncology, and pharmacogenomics. The laboratory is equipped to perform DNA/RNA extractions from various clinical specimen types, PCR amplification, microarray analysis, and next generation sequencing. Analysis of specific gene targets, panels of genes, and the clinical exome are but a few of these applications. <i>CGAT will conduct the pharmacogenomic testing that is included in one of the projects in Element E. CGAT Director Gregory Tsongalis, PhD, is a co-investigator on that project.</i>									
Center for Precision Health and Artificial Intelligence	Dartmouth College	2021601	EB8ASJBCF ER9	Partner	A,B	-	-	yes	yes
This new center leads research, facilitates collaborations, and provides training in artificial intelligence/machine learning and other novel data science methods, with a goal of advancing the field of precision health while advancing health equity. <i>Founding Center Director Dr. Hassanpour is part of SYNERGY's Informatics leadership team; other center members are engaged in Element E.</i>									