

Advocate Forms at the National Cancer Institute (NCI) for an additional three years of data collection. The Office of Advocacy Relations (OAR) disseminates cancer-related information to a variety of stakeholders, seeks input and feedback, and facilitates collaboration to advance NCI's authorized programs. It is beneficial for NCI, through the OAR, to pretest strategies, concepts, activities and materials while they are under development. Additionally, administrative forms are a necessary part of collecting demographic

information and areas of interest for advocates. Since OAR is responsible for matching advocates to NCI programs and initiatives across the cancer continuum, it is necessary to measure the satisfaction of both internal and external stakeholders with this collaboration. This customer satisfaction research helps ensure the relevance, utility, and appropriateness of the many initiatives and products that OAR and NCI produce. Past research has enabled OAR to monitor stakeholder trends, design and develop materials based on

user feedback, assess the impact of activities, and improve service delivery. Primary users are internal with some advocates providing contact information, demographics and prior advocacy experience via a link provided to them to input their data.

OMB approval is requested for 3 years. There are no costs to respondents other than their time. The total estimated annualized burden hours are 17.

#### ESTIMATED ANNUALIZED BURDEN HOURS

Type of respondent	Form name	Number of respondents	Number of responses per respondent	Average time per response (in hours)	Total annual burden hour
Individuals .....	Advocates Survey .....	6	1	5/60	1
Individuals .....	Requestor Survey .....	6	1	5/60	1
Individuals .....	Profile Completion .....	30	1	30/60	15
Total .....	.....	.....	42	.....	17

Dated: May 24, 2024

**Diane Kreinbrink,**

*Project Clearance Liaison, National Cancer Institute, National Institutes of Health.*

[FR Doc. 2024-11897 Filed 5-29-24; 8:45 am]

**BILLING CODE 4140-01-P**

## DEPARTMENT OF HEALTH AND HUMAN SERVICES

### National Institutes of Health

#### National Center for Complementary & Integrative Health; Notice of Closed Meeting

Pursuant to section 1009 of the Federal Advisory Committee Act, as amended, notice is hereby given of the following meeting.

The meeting will be closed to the public in accordance with the provisions set forth in sections 552b(c)(4) and 552b(c)(6), Title 5 U.S.C., as amended. The grant applications and the discussions could disclose confidential trade secrets or commercial property such as patentable material, and personal information concerning individuals associated with the grant applications, the disclosure of which would constitute a clearly unwarranted invasion of personal privacy.

*Name of Committee:* National Center for Complementary and Integrative Health Special Emphasis Panel; Clinical and Data Coordinating Center Applications for NCCIH Multi-Site Clinical Trials of Mind and Body Interventions.

*Date:* June 27, 2024.

*Time:* 9:30 a.m. to 1:30 p.m.

*Agenda:* To review and evaluate grant applications.

*Place:* National Center for Complementary and Integrative, Democracy II, 6707 Democracy Blvd., Bethesda, MD 20892.

*Contact Person:* Mei Qin, MD, Ph.D., Scientific Review Officer, Office of Scientific Review, Division of Extramural Activities, NCCIH/NIH, 6707 Democracy Blvd., Suite 401, Bethesda, MD 20892, [mei.qin@nih.gov](mailto:mei.qin@nih.gov). (Catalogue of Federal Domestic Assistance Program Nos. 93.213, Research and Training in Complementary and Alternative Medicine, National Institutes of Health, HHS)

Dated: May 23, 2024.

**David W. Freeman,**

*Supervisory Program Analyst, Office of Federal Advisory Committee Policy.*

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## DEPARTMENT OF HEALTH AND HUMAN SERVICES

### National Institutes of Health

#### Government-Owned Inventions; Availability for Licensing

**AGENCY:** National Institutes of Health, HHS.

**ACTION:** Notice.

**SUMMARY:** The inventions listed below are owned by an agency of the U.S. Government and are available for licensing in the U.S. to achieve expeditious commercialization of results of federally-funded research and development.

**FOR FURTHER INFORMATION CONTACT:**

Licensing information may be obtained

by emailing the licensing contact Michael Shmilovich, Esq. MS, CLP; 301-435-5019; [michael.shmilovich@nih.gov](mailto:michael.shmilovich@nih.gov) at the National Heart, Lung, and Blood, Office of Technology Transfer and Development Office of Technology Transfer, 31 Center Drive, Room 4A25, MSC2479, Bethesda, MD 20892-2479. A signed Confidential Disclosure Agreement may be required to receive any unpublished information.

**SUPPLEMENTARY INFORMATION:** This notice is in accordance with 35 U.S.C. 209 and 37 CFR part 404. Technology description follows.

Next generation MRI platform Signal Amplification by Reversible Exchange (SABRE) hyperpolarization:

Hyperpolarized magnetic resonance imaging (MRI) is an emerging molecular imaging method for metabolic imaging for detecting cancer, cardiovascular disease, stroke, and traumatic brain injury and monitoring therapy with no Gadolinium or Iron. Available for licensing and commercial development is a patent estate covering a perfluorinated single amplification by reversible exchange (SABRE) catalyst for generating MRI agents that includes a d-block element and a perfluorinated ligand hyperpolarized substrate comprising a 1/2 spin nucleus or nuclei using the perfluorinated SABRE catalysts, and isolating the resulting hyperpolarized substrate for administration. The invention also provides methods for separating a hyperpolarized substrate from the SABRE catalyst and/or hyperpolarized SABRE catalyst complex containing a

heavy metal. These changes can be observed in patients in real time with a specialized MRI approach called hyperpolarization. By transiently changing the nuclear spin of naturally occurring intermediates in cellular energy production, the metabolic fate can be observed with greater than 10,000-fold sensitivity. Current methods of hyperpolarization require expensive machines with limited throughput.

*Potential Commercial Applications:*

- MRI imaging
- Hyperpolarization
- Infusion Device for imaging reagents
- Cancer diagnostics
- Cardiovascular disease diagnostics

*Development Stage:*

- Early stage

*Inventors:* Rolf E. Swenson (NHLBI), Jessica H. Etteedgui-Benjamini (NHLBI), Carolyn Woodroffe Hitko (NCI), Murali K. Cherukuri (NCI), and Natarajan Raju (NHLBI).

*Intellectual Properties:*

- HHS Reference No. E-035-2022-0 "Preparation Of Isotopically Labeled Ketoglutarates And Methods Of Hyperpolarization Through Signal Amplification By Reversible Exchange (SABRE)"; U.S. Provisional Patent Application No. 63/303,190 filed January 26, 2022; Patent Cooperation Treaty Application PCT/US2023/011640 filed January 26, 2023.

- HHS Reference No. E-036-2022 "Sabre Catalysts Containing Fluorinated Carbon Chains For Delivery Of Metal-Free MRI Contrast Agents"; U.S. Provisional Patent Application 63/328,545 filed April 7, 2022; Patent Cooperation Treaty Application PCT/US2023/017885 filed April 7, 2023, U.S. Patent Application 18/410,773 filed January 11, 2024, Applications also pending in Japan, Canada, Israel, China, and Europe.

- HHS Reference No. E-052-2022 "Infusion device for the preparation and delivery of MRI probes," U.S. Provisional Patent Application 63/328,556 filed April 7, 2022, Patent Cooperation Treaty Application PCT/US2023/017895 filed April 7, 2023.

- HHS Reference No. E-069-2020 "Real-time Monitoring Of In Vivo Free Radical Scavengers Through Hyperpolarized [1-<sup>13</sup>C] N-acetyl Cysteine," U.S. Provisional Patent Application 62/961,855 filed January 16, 2020, Patent Cooperation Treaty Application PCT/US2021/013634 filed January 15, 2021, European Patent Application 21741034.9 filed January 15, 2021, Israeli Patent Application 294365 filed January 15, 2021, European Patent Application 17/793,083 filed January 15, 2021.

- HHS Reference No. E-070-2020 "Isotopes Of Alpha Ketoglutarate And Related Compounds For Hyperpolarized MRI Imaging," U.S. Provisional Patent Application 62/962,473 filed January 17, 2020, Patent Cooperation Treaty Application PCT/US2021/013658 filed January 15, 2021, European Patent Application 21741941.5 filed January 15, 2021, Israeli Patent Application 294464 filed January 15, 2021, U.S. Patent Application 17/793,089 filed January 15, 2021.

- HHS Reference No. E-039-2022 "Temperature Cycling Method for Hyperpolarization of Target Molecules and Contrast Agents using Parahydrogen," US Provisional Patent Application 63/203591 filed July 27, 2021, Patent Cooperation Treaty Application PCT/US2022/074122 filed July 26, 2022, U.S. Application 18/291,681.

*Publications:*

- Perfluorinated Iridium catalyst for signal amplification by reversible exchange provides metal-free aqueous hyperpolarized [1-<sup>13</sup>C]-Pyruvate. J. Etteedgui, B. Blackman, N. Raju, S. Kotler, E. Chekmenev, B. Goodson, H. Merkle, C. Woodroffe, C. LeClair, K. Murali, R. Swenson. *J. Am. Chem. Soc.* 2024, 146, 946–953.

- Monitoring response to a clinically relevant IDH inhibitor in glioma—Hyperpolarized <sup>13</sup>C magnetic resonance spectroscopy approaches. D. Hong, Y. Kim, C. Mushti, N. Minami, J. Wu, M. K. Cherukuri, R. E. Swenson, D. B. Vigneron, S. M. Ronen. *Neuro-Oncology Advances* 2023, DOI: <https://academic.oup.com/nao/article/5/1/vdad143/7337326>.

- Catalyst-Free Aqueous Hyperpolarized <sup>13</sup>C-Pyruvate Obtained by Re-Dissolution Signal Amplification by Reversible Exchange A. B. Schmidt; H. de Maissin; I. Adelabu; S. Nantogma; J. Etteedgui; P. TomHon; B. M Goodson.; T. Theis; E. Y. Chekmenev. *ACS Sensors* 2022, 7 (11), 3430–3439.

- Rapid <sup>13</sup>C Hyperpolarization of the TCA-Cycle Intermediate α-Ketoglutarate via SABRE-SHEATH. I. Adelabu, Isaiah; Etteedgui, Jessica; Joshi, Sameer; Nantogma, Shiraz; Chowdhury, Md Raduanul; McBride, Stephen; Theis, Thomas; Sabbasani, Venkata; Chandrasekhar, Mushti; Sail, Deepak; Yamamoto, Kazutoshi; Swenson, Rolf; Krishna, Murali; Goodson, Boyd; Chekmenev, Eduard. *Anal. Chem.* 2022, 94, 13422–13431.

- Order-Unity <sup>13</sup>C Nuclear Polarization of [1-<sup>13</sup>C]Pyruvate in Seconds and the Interplay of Water and SABRE Enhancement. I. Adelabu, P. TomHon, M. S. H. Kabir, S Nantogma, M. Abdulmojeed, I. Mandzhieva, J.

Etteedgui, R. E. Swenson, M. C. Krishna, T. Theis, B. M. Goodson, and E. Y. Chekmenev. *ChemPhysChem.* 2022, 23, 131–136.

- Simple esterification of [1-<sup>13</sup>C]-alpha-ketoglutarate enhances membrane permeability and allows for non-invasive tracing of glutamate and glutamine production. J. AbuSalim, K. Yamamoto, N. Miura, B. Blackman, J. Brender, C. Mushti, T. Seki, K. Camphausen, R. Swenson, M. Krishna, A. Kesarwala. *ACS Chem. Biol.* 2021, 16, 2144–2150. DOI: 10.1021/acschembio.1c00561

- Synthesis of [1-<sup>13</sup>C-5–12 C]-alpha-ketoglutarate enables non-invasive detection of 2-hydroxyglutamate. N. Miura, C. Mushti, D. Sail, J. E. Bingham, K. Yamamoto, J. R. Brender, T. Seki, D. I. AbuSalim, S. Matsumoto, K. A. Camphausen, M. C. Krishna, R. E. Swenson, A. H. Kesarwala. *NMR in Biomedicine* 2021, 34, e4588. <https://doi.org/10.1002/nbm.4588>.

- Low-cost High-Pressure Clinical-Scale 50% Parahydrogen Generator Using Liquid Nitrogen at 77 K. B. Chapman, B. Joalland, C. Meersman, J. Etteedgui, R. E. Swenson, M. C. Krishna, P. Nikolaou, K. V. Kovtunov, O. G. Salnikov, I. V. Koptuyug, M. E. Gemeinhardt, B. M. Goodson, R. V. Shchepin, and E. Y. Chekmenev. *Anal. Chem.* 2021, 93, 8476–8483.

- Real Time Insight into In Vivo Redox Status utilizing Hyperpolarized [1-<sup>13</sup>C] N-Acetyl Cysteine. K. Yamamoto, A. Opina, D. Sail, B. Blackman, K. Saeito, J. R. Brender, R. M. Malinowski, T. Seki, N. Oshima, D. R. Crooks, S. Kishimoto, Y. Saida, Y. Otowa, P. L. Choyke, J. H. Ardenkjaer-Larsen, J. B. Mitchell, W. M. Linehan, R. E. Swenson, M. C. Krishna. *Sci. Reports* 2021, 11, 12155.

Dated: May 23, 2024.

**Michael A. Shmilovich,**

*Senior Licensing and Patenting Manager, National Heart, Lung, and Blood Institute, Office of Technology Transfer and Development.*

[FR Doc. 2024-11796 Filed 5-29-24; 8:45 am]

**BILLING CODE 4140-01-P**

## DEPARTMENT OF HEALTH AND HUMAN SERVICES

### National Institutes of Health

#### Center for Scientific Review; Notice of Closed Meetings

Pursuant to section 1009 of the Federal Advisory Committee Act, as amended, notice is hereby given of the following meetings.