

**BIOGRAPHICAL SKETCH**

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NAME: Schnall, Mitchell D

eRA COMMONS USER NAME (credential, e.g., agency login): mitchell.schall@uphs.upenn.edu

POSITION TITLE: Eugene P. Pendergrass Professor and Chairman, Radiology

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of Pennsylvania, Philadelphia PA	BA	05/1981	Physics
University of Pennsylvania, Philadelphia PA	Ph.D.	05/1986	Biophysics
University of Pennsylvania, Philadelphia PA	M.D.	05/1986	Doctor of Medicine
Lankenau Hospital, Wynnewood PA		06/1987	Medical Intern
Hospital of the University of Pennsylvania, Philadelphia PA		07/1991	Radiology Residency

**A. Personal Statement**

I am an international leader in translational biomedical and imaging research, working throughout my career across the interface between imaging science and clinical medicine to ensure effective integration of radiology research with other medical disciplines. My work has led to fundamental changes in imaging approaches to breast and prostate cancer, and I continue to have a significant influence on emerging imaging technologies. I'm an expert in imaging clinical trials, by experience with the NCI-established PROSPR Consortium. I am the Co-PI of the Penn Center for Innovation in Personalized Cancer Screening (PCIPS), which works to advance the individualized cancer screening paradigm and to promote collaboration within the PROSPR network, with other institutions and investigators, and with Penn's own research community. As part of the PROSPR initiative, PCIPS has created a vast data repository from a variety of sources, most remarkably the diverse population of women who undergo breast cancer screening and those who undergo lung cancer screening in Penn Medicine's health network.

I currently serve as the Co-Chair and CO-PI of the ECOG-ACRIN Cancer research network, an NCI-funded cooperative group that has made several seminal contributions to cancer imaging. ECOG-ACRIN works to discover ways for imaging to improve cancer care, including determining optimal methods for early detection of cancer in order to provide the best opportunity for cure, as well as establishing techniques to characterize cancer and its response to treatment in order to choose the most appropriate therapy.

I have extensive experience in mentoring clinician scientists. I have been PI of a T32 to develop clinician scientists in Radiology and serve as a trainer on several other training grants.

**B. Positions and Honors****Positions and Employment**

1987-1991	Assistant Instructor, Department of Radiology, University of Pennsylvania School of Medicine, Philadelphia, PA
1991-1994	Assistant Professor of Radiology, University of Pennsylvania School of Medicine
1994-2001	Associate Professor of Radiology, University of Pennsylvania School of Medicine
1998-present	Associate Professor with tenure, University of Pennsylvania School of Medicine, Philadelphia, PA
2001-2002	Mathew J. Wilson Associate Professor of Research Radiology, University of Pennsylvania School of Medicine
2001-2011	Matthew J. Wilson Professor of Research Radiology, University of Pennsylvania School of Medicine
2002-2011	Matthew J. Wilson Professor of Research Radiology, University of Pennsylvania School of Medicine
2011-2012	Professor of Radiology, University of Pennsylvania School of Medicine
2012-present	Eugene P. Pendergrass Professor of Radiology, University of Pennsylvania School of Medicine
2012-present	Chairman, Department of Radiology, Hospital of the University of Pennsylvania, Philadelphia, PA

**Other Experience and Professional Memberships**

2008-present Group Chair, American College of Radiology Imaging Network (ACRIN)

2012-present Co-Chair, ECOG-ACRIN Cancer Research Group

Member, American Society of Clinical Investigation

Member, Association of American Physicians

Member, National Academy of Medicine

**Honors**

2008 Elected to the Institute of Medicine

**C. Contribution to Science****1. Member of the PROSPR Consortium and Principal Investigator of PCIPS**

I served as PI for the Penn Center for Innovation in Personalized Breast Screening, and was also a co-principal investigator of a five-year, \$10 million grant to study the progression of breast cancer using state-of-the-art imaging techniques and animal models, with the goal of developing more effective therapies. With that grant, the Perelman School of Medicine was named a Breast Cancer Center of Excellence by the Department of Defense Breast Cancer Research Program. I now serve as Co-PI of the Penn Lung Cancer PROSPR center.

- a. Conant EF, Barlow WE, Herschorn SD, Weaver DL, Beaber EF, Tosteson ANA, Haas JS, Lowry KP, Stout NK, Trentham-Dietz A, diFlorio-Alexander RM, Li CI, **Schnall MD**, Onega T, Sprague BL; Population-based Research Optimizing Screening Through Personalized Regimen (PROSPR) Consortium. Association of Digital Breast Tomosynthesis vs Digital Mammography With Cancer Detection and Recall Rates by Age and Breast Density. *JAMA Oncol.* 2019 Feb 28.
- b. Doubeni CA, Gabler NB, Wheeler CM, McCarthy AM, Castle PE, Halm EA, Schnall MD, Skinner CS, Tosteson ANA, Weaver DL, Vachani A, Mehta SJ, Rendle KA, Fedewa SA, Corley DA, Armstrong K. Timely follow-up of positive cancer screening results: A systematic review and recommendations from the PROSPR Consortium. *CA Cancer J Clin.* 2018 May;68(3):199-216.
- c. Beaber EF, Kim JJ, Schapira MM, Tosteson AN, Zauber AG, Geiger AM, Kamineni A, Weaver DL, Tiro JA; Population-based Research Optimizing Screening through Personalized Regimens Consortium. Unifying screening processes within the PROSPR consortium: a conceptual model for breast, cervical, and colorectal cancer screening. *J Natl Cancer Inst.* 2015 May 7;107(6)
- d. Onega, T., Beaber, E.F., Sprague, B.L., Barlow, W.E., Haas, J.S., Tosteson, A.N., **Schnall M.D.**, Armstrong, K., Schapira, M.M., Geller, B., Weaver, D.L., Conant, E.F. (2014). Breast cancer screening in an era of personalized regimens: a conceptual model and National Cancer Institute initiative for risk-based and preference-based approaches at a population level. *Cancer*, 120(19), 2955-64. PMID: PMC4342235

**2. Group Co-Chair of ECOG-ACRIN**

In addition to the PROSPR contributions described above, my leadership at ACRIN works to help discover ways for imaging to improve cancer care, including determining optimal methods for early detection of cancer in order to provide the best opportunity for cure, as well as establishing techniques to characterize cancer and its response to treatment in order to choose the most appropriate therapy. Several ACRIN clinical trials are now among the highest profile clinical trials in NCI's portfolio and a majority of trials involve collaboration with therapy cooperative groups or industries.

- a. Scheel JR, Kim E, Partridge SC, Lehman CD, Rosen MA, Bernreuter WK, Pisano ED, Marques HS, Morris EA, Weatherall PT, Polin SM, Newstead GM, Esserman LJ, **Schnall MD**, Hylton NM; ACRIN 6657 Trial Team and I-SPY Investigators Network. MRI, Clinical Examination, and Mammography for Preoperative Assessment of Residual Disease and Pathologic Complete Response After Neoadjuvant Chemotherapy for Breast Cancer: ACRIN 6657 Trial. *AJR Am J Roentgenol.* 2018 Jun;210(6):1376-1385.
- b. Bolan PJ, Kim E, Herman BA, Newstead GM, Rosen MA, **Schnall MD**, Pisano ED, Weatherall PT, Morris EA, Lehman CD, Garwood M, Nelson MT, Yee D, Polin SM, Esserman LJ, Gatsonis CA, Metzger GJ, Newitt DC, Partridge SC, Hylton NM; ACRIN Trial team ISPY-1 Investigators. MR spectroscopy of breast cancer for assessing early treatment response: Results from the ACRIN 6657 MRS trial. *J Magn Reson Imaging.* 2017 Jul;46(1):290-302.
- c. Hylton, N.M., Blume, J.D., Bernreuter, W.K., Pisano, E.D., Rosen, M.A., Morris, E.A., Weatherall, P.T., Lehman, C.D., Newstead, G.M., Marques, H.S., Esserman, L.J., **Schnall, M.D.** Locally advanced breast cancer: MR imaging for prediction of response to neoadjuvant chemotherapy--results from ACRIN 6657/I-SPY TRIAL, *Radiology.* 2012. 263(3), 663-72.
- d. Lehman, C.D., Gatsonis, C., Kuhl, C.K., Hendrick, R.E., Pisano, E.D., Hanna, L., Peacock, S., Smazal, S.F., Maki, D.D., Julian, T.B., DePeri, E.R., Bluemke, D.A., **Schnall, M.D.** MRI evaluation of the contralateral breast in women with recently diagnosed breast cancer. *New England Journal of Medicine*, 2007. 356(13), 1295-303.

**D. Ongoing and Recently-Completed Research Support**

830062 Gefter                      Gefter, Warren, MD                      3/15/2019 - 2/14/2022  
 Siemens Medical Solutions USA  
**Chest Software Evaluation CT**

Evaluation of Chest AI prototype software for the detection and measurement of pulmonary nodules. Specifically, to study the workflow efficiency and cost effectiveness through three steps: baseline comparison, retrospective feasibility study, and a real world prospective study.

T32-EB-004311-16                      Mankoff, David, MD, PhD                      7/1/2020 - 6/30/2025  
 NIH  
**Research Track Radiology Residency**

This program proposes continuing the Research Track Radiology Residency Program, which incorporates research training into the clinical radiology residency. This will produce clinician-scientists who can perform high-quality imaging research that is relevant and translatable to patient care.

P41-EB-029460-01A1                      Reddy, Ravinder, PhD                      6/1/2021 - 5/31/2026  
 NIH  
**Center for Advanced Metabolic Imaging in Precision Medicine (CAMIPM)**

Our proposed Biomedical technology research center (BTRC), the “Center for Advanced Metabolic Imaging in Precision Medicine (CAMIPM)”, is addressing this compelling need by focusing on tailoring noninvasive metabolic imaging tools to guide personalized diagnostic and treatment interventions in four major branches of medicine: Oncological, Cardiovascular, Neuropsychiatric, and Musculoskeletal.

   Schnall, Mitchell, MD, PhD                      6/29/2021 - 6/28/2022  
 Siemens Medical Solutions USA  
**Development of clinical decision support tools for management of hepatocellular carcinoma patient pathways**

This project will be a joint development effort between Siemens and UPenn of advanced analytics tools and algorithms to assist with the management of liver disease patients. In the first phase, the major effort will be in modeling the clinical workflow in terms of data management and integration, and representing the clinical pathway. The subsequent effort will be in data analysis techniques, especially deep learning and AI, applied to support decision points and model the decision-making process. The specific technologies to be developed in the initial phases of the project are intended to assist in diagnosis, staging, and treatment of hepatocellular carcinoma (HCC) patients.

U24                      Schnall, Mitchell, MD, PhD                      9/1/2020 - 6/30/2026  
 ECOG-ACRIN  
**ECOG-ACRIN Biospecimen Bank to Support NCTN**

As the EA Co-Chair, Dr. Schnall shares responsibilities for the overall scientific direction of the Group, for setting scientific and administrative priorities, the allocation of resources within EA and its members, and the oversight of biospecimen banks, with Robert L. Comis, M.D. Dr. Schnall shares with Dr. Comis the responsibility for development, maintenance and administration of the strategic initiative, operational infrastructure, and scientific programs of the Group.

UG1CA189828-06-UPA1                      Schnall, Mitchell, MD, PhD                      8/1/2019 - 7/31/2025  
 ECOG-ACRIN  
**ECOG-ACRIN NCORP Research Base**

Mitchell D. Schnall, MD, PhD, (as the ECOG-ACRIN Group Co-Chair and Co-Principal Investigator, shares responsibilities for the overall scientific direction of the Group, for setting scientific and administrative priorities, overseeing the operational infrastructure, leading the scientific programs of the Group and for the allocation of resources within ECOG-ACRIN and its members with Robert Comis, MD. Dr. Schnall has extensive experience in cancer screening, diagnosis, and surveillance. Dr. Schnall will lend expertise in leading multicenter cancer research programs and will represent the E-A NCORP in the Group Headquarters office.

U10CA180820-06 Schnall, Mitchell, MD, PhD  
ECOG-ACRIN Medical Research Foundation  
**ECOG-ACRIN Operations Center**

3/1/2019 - 2/28/2025

Mitchell Schnall, MD, PhD, as the ECOG-ACRIN Group Co-Chair and Co-Principal Investigator, shares responsibilities for the overall scientific direction of the Group, for setting scientific and administrative priorities, overseeing the operational infrastructure, leading the scientific programs of the Group and for the allocation of resources within ECOG-ACRIN and its members with Robert L. Comis, MD. They will ensure the proper management of the ECOG-ACRIN headquarters, establish and communicate with strategic direction of the organization, and ensure the successful operational performance of the Network. Dr. Schnall will liaise with other cooperative groups and engage in collaborative efforts to enhance the scientific research of each. Dr. Schnall will serve as one of ECOC-ACRIN's scientific officials in activities with the National Cancer Institute and will communicate closely with the NCI at all levels to ensure ECOG-ACRIN remains consistent with its mission and has the funding and support necessary to fulfill its mission.