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Co-Director, Complex Adaptive Systems (CAS)
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As Co-Director of CAS, Dr. Barker designs and implements new research models specifically directed toward addressing major problems in biomedical research and biomedicine. CAS at ASU serves as an organizing construct to understand and solve multi-dimensional problems in the biomedical and health sciences. These multi-sector networks are the foundation for the development of new research models that leverage convergent knowledge, innovative teams and novel funding approaches to understand and improve the diagnosis and treatment of complex diseases such as cancer. The focus for much of these efforts is based in understanding these multi-factorial diseases as complex adaptive systems. Several initiatives are underway including: NBDA, a non-profit trans-sector think tank dedicated to transforming biomarker discovery and development; a “next generation” clinical trial, GBM AGILE (Adaptive, Global, Innovative, Learning Environment) for Glioblastoma (GBM), the most common and deadly of the adult brain tumors; biomarker qualification programs; and ongoing solutions oriented workshops and think tanks.

Prior to joining ASU, Dr. Barker served several years as the Deputy Director and Deputy Director for Strategic Scientific Initiatives for the NCI, National Institutes of Health (NIH). At the NCI Dr. Barker developed and led or co-led a number of trans-disciplinary programs including: Nanotechnology Alliance for Cancer, The Cancer Genome Atlas (TCGA); and the Clinical Proteomics Technologies Initiative. Dr. Barker also led a multi-year effort to plan and implement a new trans-disciplinary research construct to enable the convergence of the physical sciences (physics, mathematics, physical chemistry and engineering) with cancer biology. Under her leadership, the NCI developed major initiatives in bio specimen science and bioinformatics. She was founding co-chair of the NCI-FDA Interagency Task Force (IOTF) and founding co-chair of the Cancer Steering Committee of the FNIH Biomarkers Consortium (FNIH-BC). She also oversaw the NCI’s international cancer research programs, including pilot programs in Latin America and China.

Dr. Barker has a long history in research and the leadership and management of advanced research and development in the academic, non-profit and private sector. She was a senior executive at Battelle Memorial Institute for 18 years where she led major efforts in drug discovery and development, pharmacology, clinical trials and biotechnology. As a Senior Vice and Group President at Battelle, she pioneered key initiatives in cancer research and biomedicine. In the private sector, she was a co-founder and CEO of a public biotechnology company focused on diagnostics and the development of novel agents to control reactive oxygen damage in inflammatory diseases and cancer.

Dr. Barker has received a number of awards for her contributions to cancer research and professional and advocacy organizations. Recent examples include the AACR Margaret Foti Award for Leadership and Extraordinary Achievements in Cancer Research; Frances Prescott Award for Breast Cancer Research Advocacy. Vanderbilt University: Named Fellowship Award (AACR Anna D. Barker Basic Science Fellowship), NBTS Founders Award for Research Excellence, 2014 Distinguished Alumni Award, College of Arts and Sciences, The Ohio State University; and the CFA Cullings Memorial Lecture Award. Dr. Barker received her B.S. from Morehead State University; and her M.A. and Ph.D. at the Ohio State University, where she trained in immunology and microbiology. Her research interests include complex adaptive systems; disease, biomarker discovery and development, advanced clinical trial models, experimental therapeutics and free-radical biochemistry in cancer etiology and treatment.