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# The Ethics of Protocells

Moral and Social Implications of Creating Life in the  
Laboratory

edited by Mark A. Bedau and Emily C. Parke

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## Preface

Protocells are tiny, self-organizing, evolving entities that spontaneously assemble and continuously regenerate themselves from simple organic and inorganic substrates in their environment. A number of scientific teams around the world are racing to create protocells, and success is expected within a few years.

Protocells will raise a number of social and ethical issues, involving benefits to individuals and to society, risks to human health and the environment, and transgressions of cultural and moral prohibitions. This volume contains the thoughts of a diverse group of experts who explore the prospect of protocells from a variety of perspectives. These perspectives include applied ethics in analytical philosophy, continental philosophy, and anthropology as well as political and social commentary. The book raises broad questions for a broad audience, without necessarily drawing final conclusions.

We produced this book because we believe the social and ethical issues raised by the prospect of protocells are complex, and involve many interesting open questions. We hope that this volume will contribute to finding responsible solutions to these issues. Our aim is to engage and inform all stakeholders and to prepare them for navigating the uncharted waters ahead.

Our intended audience is multidisciplinary and includes a wide variety of people. One primary target audience is the protocell research community, including those interested in the commercial potential of protocells, and scientists working in related areas of biotechnology and nanotechnology. It also includes policy makers, political scientists, applied ethicists, activists concerned with bioethics, science, and technology studies or ethical, legal, and social issues (ELSI) concerning biotechnology, and those concerned with the convergence of nanotechnology, biotechnology, information technology, and cognitive science. In addition, we aim to engage those in the general public who are concerned about social and ethical implications of biotechnology.

Our own interest in this project arose from our participation in the EU-funded FP6 project on Programmable Artificial Cell Evolution (PACE). As part of the PACE project, we organized a series of workshops on the social and ethical implications of protocell research and development; half of the chapters in this volume originated as presentations at those workshops. We are grateful to PACE for supporting our work on these issues. We are also grateful to the European Center for Living Technology and to Los Alamos National Laboratory, for their hospitality during those workshops.

The chapters in this book do not provide all the answers, but they do raise many important questions about the socially and ethically complex project of creating living technology. We will judge this book a success if it helps our society to flourish in a future with many new forms of living technology, including protocells.

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