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Nota di contenuto	""Front Matter""; ""The National Academies Keck Futures Initiative""; ""Preface""; ""Contents""; ""Conference Summary""; ""IDR Team Summary 1: What new foundational technologies and tools are required to make biology easier to engineer?""; ""IDR Team Summary 2: What are the significant differences, if any, between risk assessment capacity and religious analyses of the moral permissibly for synthetic biology applications and other biotechnology applications?"" ""IDR Team Summary 3: Reconstructing gene circuitry: How can synthetic biology lead us to an understanding of the principles underlying natural genetic circuits and to the discovery of new biology?"" ""IDR Team Summary 4: Designing communities of cells: how do we create communication and collaboration between cells to allow for specialization and division of labor?""; ""IDR Team Summary 5: Why are human-designed biological circuits and devices fragile and

inaccurate relative to their natural counterparts?"

"IDR Team Summary 6: How can genomics be leveraged to develop coherent approaches for rapidly exploring the biochemical diversity in and engineering of non-model organisms?"

"IDR Team Summary 7: How do we move beyond genetics to engage chemical and physical approaches to synthetic biology?"

"IDR Team Summary 8: What is the role of evolution and evolvability in synthetic biology?"

"IDR Team Summary 9: How do we maximally capitalize on the promise of synthetic biology?"

"Appendixes"; "List of Synthetic Biology Podcast Tutorials"; "Agenda"; "Participants"

Sommario/riassunto

Synthetic biology is an innovative and growing field that unites engineering and biology. It builds on the powerful research that came about as a result of a recombinant DNA technology and genome sequencing. By definition, synthetic biology is an interdisciplinary enterprise comprising biologists of many specialties, engineers, physicists, computer scientists and others. It promises a fundamentally deeper understanding of how living systems work and the capacity to recreate them for medicine, public health and the environment, including renewable energy. NAKFI Synthetic Biology: Building a Nation's Inspiration discusses new foundational technologies and tools required to make biology easier to engineer, considers ethical issues unique to synthetic biology, explores how synthetic biology can lead to an understanding of the principles underlying natural genetic circuits and debates how synthetic biology can be used to answer fundamental biological questions.
