(a) Understanding Biology

Native circuit

Similar competence dynamics

Competence vs. Time

Native

Synthetic

Transformation Efficiency

Extracellular DNA

Differing precision in competence duration

Native Synthetic

Noise in duration

Differing consistency in transformation efficiency

Native Synthetic

Differing precision in competence duration

Native Synthetic

Differing consistency in transformation efficiency

Native Synthetic

(b) Biomanufacturing

Unscaffolded pathway mevalonate production

Scaffolded pathway mevalonate production

(c) Therapeutics and Diagnostics

Disease marker protein present

Disease marker protein absent

Spliced transcript excludes exon containing stop codon

Suicide-gene expression leads to death of diseased cells

Spliced transcript includes exon containing stop codon

Suicide-gene expression suppressed in non-diseased cells

Figure 2