A. Robustness filter.

Avg. velocity rank	Run	Failed conditional
1	90	B1, B3
2	75	B3
3	43	B2, B3
4	5	B3
5	48	B1, B2, B3
6	69	B3
7	51	B2, B3
8	88	B2, B3
9	20	B2, B3
10	76	B2, B3
11	79	B2, B3
12	12	B1, B2
13	84	B1, B2
14	29	B2, B3
15	**52**	**None**
16	99	B1
...	...	...
100	31	B1

B. Build filter.

B1. Contiguous tissue regions?

The current build method layers tissue types sequentially, one on top of the other, with each layer filling the x,y plane (Fig. S6).

→ no → Do not build.

↓ yes

B2. Stable geometry?

Gaps of 100 microns or larger represent the smallest concavity which was stable at the time of shaping and across at least five successive days of development (Fig. S7).

→ no → Do not build.

↓ yes

B3. Mostly passive tissue?

Designs should be at least 50% passive tissue for energy efficiency, and to scale to more complex tasks requiring non-actuating organ systems and room for payloads.

→ no → Do not build.

↓ yes

Select for build.