**Making 3D Structures From Planes**

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**Origami Engineering**

*Origami* is a Japanese traditional art folding a sheet of paper into a 3D figure. Moreover, *origami* technique is used in various industry fields from everyday items to space exploration.

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**Cell Origami**

A human body is consisted of trillions of cells. We have dreamed of building an artificial body by assembling cells, but it was difficult to build 3D structures using cells cultured on plane dishes. Our “cell *origami*” technique enables this by taking advantage of the traction force of cells.

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**Cell Traction Force (CTF)**

Cells are usually hard to manipulate because they are small, soft and attach to dishes firmly. We succeeded to move and array cells by using cell-sized movable microplates like “flying carpets.”

**Flying carpets for cells**

Cells bridge gaps between microplates. Microplates are folded by cell traction force. Various 3D structures are formed.

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**Culture cells on cell-sized microplates**

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**Microplates are folded by cell traction force**

**Various 3D structures are formed**

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**Self-folding by CTF**

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