**Effects of Mechanical Rigidity and Geometric Control on Colon Cancer Metastasis**

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**Key Research Aims and Goals**

To understand the mechanism of coupled mechanical-elasticity cues and geometric cues on the onset of *in vitro* colon cancer metastasis.

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**Research Highlights and Results**

- We have discovered that human colon carcinoma (HCT-8) cells consistently show *in vitro* metastasis-like phenotype (MLP) when cultured on substrates with appropriate mechanical stiffness (21-47 kPa), but not on very soft (1 kPa) and very stiff substrates (3.6 GPa) [[1, 2], Fig. 1a].

- We now have developed a novel micro-patterning technique to spatially confine the living cells adheison within pre-defined geometric zones on 2D polyacrylamide hydrogel substrates (Fig. 1b).

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**Future Research Plans**

- The developed micro-patterning technique will enable us to study the coupled effect of geometric cues and rigidity cues on the onset of *in vitro* metastasis.

- Successful identification and mechanistic understanding of metastasis-triggering signals is critical for the design of novel anti-metastasis therapeutics.

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