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[\[PDF \(2483K\)\]](#) [\[References\]](#)**MPC polymer regulates fibrous tissue formation by modulating cell adhesion to the biomaterial surface**[Ye ZHANG](#)¹⁾, [Hiroyasu KANETAKA](#)¹⁾²⁾, [Yuya SANO](#)²⁾, [Mitsuhiro KANO](#)³⁾, [Tada-aki KUDO](#)⁴⁾ and [Yoshinaka SHIMIZU](#)³⁾

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Abstract:

The aim of this study was to analyze the effects of 2-methacryloyloxyethyl phosphorylcholine (MPC) polymer on fibrous tissue formation and cell adhesion plaque (CAP)-forming reactions. Silastic elastomer (SE) plates coated (experimental group) and uncoated (control group) with MPC polymer were prepared for *in vivo* and *in vitro* experiments. For the *in vivo* animal experiments, SE plates were implanted subcutaneously in the rat dorsal region. At 4, 8, and 12 weeks, thicknesses of the fibrous tissue capsules in the experimental group were lower than in the control group. Likewise, the amount of collagen in the experimental group was lower than that of the control group. For the *in vitro* cell culture experiments, KMST-6 fibroblast cells in the experimental group demonstrated enhanced cell migration, accompanied with a weaker expression of vinculin and a larger amount of filopodia. Furthermore, weaker expressions of paxillin, talin, and ROCK1, but stronger expression of cofilin, were observed in the experimental group. Taken together, these results suggested that MPC polymer regulated fibrous tissue formation by modulating cell adhesion through changes in local CAPs and downstream signaling.

Key words:

[2-methacryloyloxyethyl phosphorylcholine polymer](#), [Fibrous tissue](#), [Cell adhesion plaque](#)

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