are illustrated and, together with the descriptions below, serve to explain the principles of the disclosure.

[0037] FIG. 1 shows quantitation of enzyme efficacy of Polymer **12** using a fluorescence- based study.

[0038] FIG.S 2A, 2B and 2C show images of Polymer **12** samples used in the fluorescence-based study of **FIG. 1**

[0039] Specifically, **FIG. 2A** shows samples as viewed under ambient light.

[0040] Specifically, **FIG. 2B** shows samples as viewed under UV light.

[0041] Specifically, **FIG. 2C** shows the labeling of individual samples.

[0042] FIG. 3 shows quantitation of enzyme efficacy of Polymer **17** (pretreated with PBS) using a fluorescence-based study: eluent after PBS-soaking period.

[0043] FIG. 4 shows quantitation of enzyme efficacy of Polymer **17** (pretreated with PBS) using a fluorescence-based study: solid re-suspended in PBS after initial PBS-soaking period.

[0044] FIG. 5 shows average time to closure during scratch model tests (Error bars show SD) for cell lines from Patients A, F and G. The red bars highlight samples in fiber form; the blue bars represent samples in powder form.

[0045] FIG.S 6A, 6B, 6C, and 6D show confocal micrographs for 12, CMC-PEG- H2 powder, Patient A, 0.066 mg/mL scratch assay. Red dotted lines represent the scratch area, fibroblast proliferation can be observed between T=lh (no cells present in the channel) and T=68h (cells fill the channel).

[0046] Specifically, **FIG. 6A** shows fibroblast proliferation as observed at 1 hour.

[0047] Specifically, **FIG. 6B** shows fibroblast proliferation as observed at 30 hours.

[0048] Specifically, **FIG. 6C** shows fibroblast proliferation as observed at 50 hours.

[0049] Specifically, **FIG. 6D** shows fibroblast proliferation as observed at 68 hours.

[0050] FIG.S 7A, 7B, 7C, and 7D show confocal micrographs for 12, CMC-PEG- H2 powder, Patient A, 0.66 mg/mL scratch assay. Red dotted lines represent the scratch area, fibroblast proliferation can be observed between T=lh (no cells present in the channel) and T=68h (cells fill the channel).

[0051] Specifically, **FIG. 7A** shows fibroblast proliferation as observed at 1 hour.

[0052] Specifically, **FIG. 7B** shows fibroblast proliferation as observed at 30 hours.

[0053] Specifically, **FIG. 7C** shows fibroblast proliferation as observed at 50 hours.

[0054] Specifically, **FIG. 7D** shows fibroblast proliferation as observed at 68 hours.

[0055] FIG. 8 shows results of studies with collagen matrix model, plot showing the lattice diameter over 7 days - Patient A.

[0056] FIG. 9 shows results of studies with collagen matrix model, plot showing the lattice diameter over 7 days - Patient F.

[0057] FIG. 10 shows results of studies with collagen matrix model, plot showing the lattice diameter over 7 days - Patient G.

[0058] FIG. 11 shows results of studies with collagen matrix model, wherein photographs indicate the difference in lattice diameter at days 3 and 7 - Patient A.

[0059] FIG. 12 shows results of studies with collagen matrix model, wherein photographs indicate the difference in lattice diameter at days 3 and 7 - Patient F.

[0060] FIG. 13 shows results of studies with collagen matrix model, wherein photographs indicate the difference in lattice diameter at days 3 and 7 - Patient G.

[0061] FIG. 14 shows a schematic diagram for a potential peptide modified CMC and LC system for detection of proteases, wherein (a) shows the initial system set up which would show homotropic LC alignment (dark if viewed under crossed polarized lenses), (b) shows the cleavage of the peptide releasing the lipid in progress, (c) shows the cleaved lipid in contact with LCs, which would initiate planar LC realignment (colored if viewed under crossed polarized lenses).

[0062] FIG.S 15A, 15B, 15C, and 15D show micrographs showing liquid crystal 4'-n-pentyl-4-cyano-biphenyl (5CB) filled TEM (Transmission Electron Microscopy) grids upon application of CMC gel.

[0063] Specifically, **FIG. 15A** shows the 5CB filled TEM grids prior to application of CMC hydrogel - homeotropic LC alignment.

[0064] Specifically, **FIG. 15B** shows the 5CB filled TEM grids after application of CMC hydrogel at T=0; change to planar LC alignment.

[0065] Specifically, **FIG. 15C** shows the 5CB filled TEM grids after application of CMC hydrogel at T=2 minutes (planar LC alignment) (left panel) and after application of CMC hydrogel at T=5 minutes (planar LC alignment) (right panel).

[0066] Specifically, **FIG. 15D** shows the 5CB filled TEM grids after application of CMC hydrogel at T=10 minutes (planar LC alignment retained) (left panel) and after application of CMC hydrogen at T=90 minutes (planar LC alignment retained) (right panel).

DETAILED DESCRIPTION

[0067] Various aspects now will be described more fully hereinafter. Such aspects may, however, be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided so that this disclosure will be thorough and complete, and will fully convey its scope to those skilled in the art.

[0068] Throughout this disclosure, various patents, patent applications and publications are referenced. The disclosures of these patents, patent applications and publications in their entireties are incorporated into this disclosure by reference in order to more fully describe the