Supporting Information

for

Wet-spinning of magneto-responsive helical chitosan microfibers

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Additional experimental data
Figure S1: Schematic of the custom-built setup for wet-spinning of chitosan solutions blended with IOPs. Viscous feedstock solutions were extruded into an ethanol coagulation bath to facilitate fiber preparation.
**Figure S2:** Custom-built setup for the wet-spinning process of helical microfibers. A solution of chitosan containing magnetic iron oxide nanoparticles is extruded into an ethanol coagulation bath. The emerging fibers are collected by a teflon-coated rotating needle with a stainless steel core, which simultaneously performs a translatory movement to achieve a helical fiber shape.

**Table S1:** Magnetic properties of the samples as determined with VSM.

| VSM results                     | iron oxide concentration |
|---------------------------------|--------------------------|
|                                 | 1 mg·mL⁻¹ | 4 mg·mL⁻¹ | 7 mg·mL⁻¹ | 10 mg·mL⁻¹ |
| saturation magnetization [T]    | 0.012     | 0.041     | 0.041     | 0.052      |
| remanent magnetization [T]      | 2.99 × 10⁻⁴ | 7.69 × 10⁻⁶ | 7.69 × 10⁻⁶ | 4.80 × 10⁻³ |
| coercive field [A·m⁻¹]          | −150      | −231      | −231      | −211       |
| $BH_{max}$ [MGsOe]              | 4.65 × 10⁻⁵ | 3.16 × 10⁻⁴ | 3.16 × 10⁻⁴ | 3.15 × 10⁻⁴ |
**Table S2:** Dynamic light scattering analysis of IOP dispersions in water.

| pH   | ZP [mV] | pH   | Z-ave [nm] | number mean [nm] |
|------|---------|------|------------|------------------|
| 10.9 | −50.1   | 10.9 | 888        | 128              |
| 6.32 | −26.4   | 6.4  | 684        | 103              |
| 6.52 | −27.8   | 6.6  | 445        | 115              |
| 3.14 | 29.9    | 3.2  | 380        | 95               |