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Supporting Information

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Poly(Glutamic Acid-Lysine) Hydrogels with Alternating Sequence Resist the Foreign Body Response in Rodents
and Non-Human Primates

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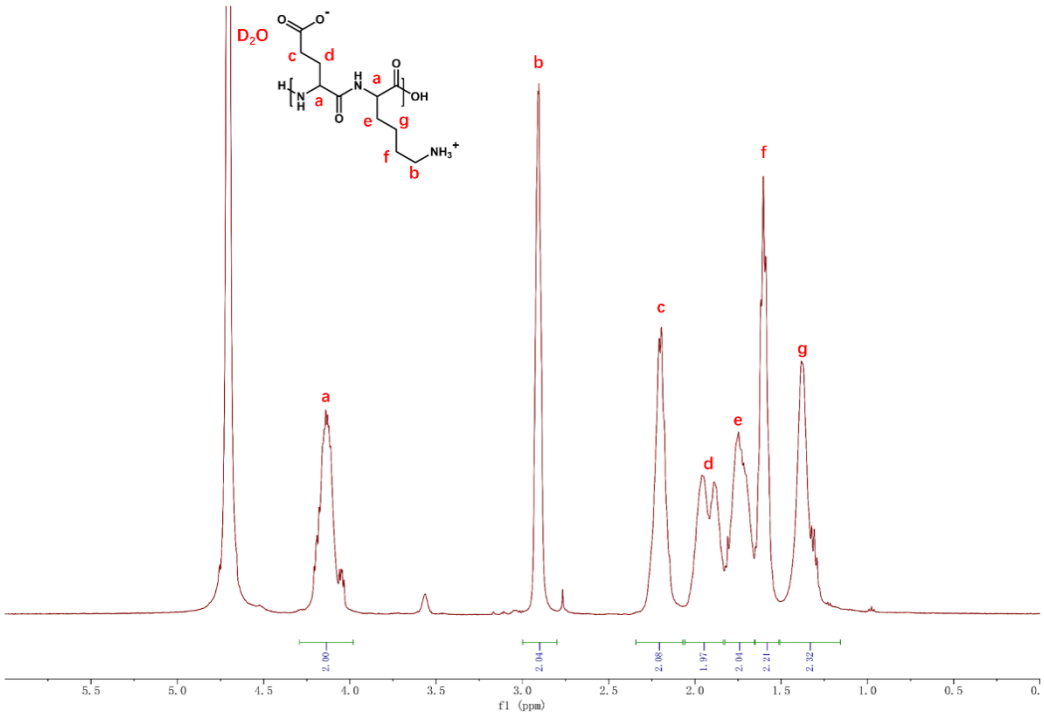

Figure S1. ^{1}H NMR (400 MHz, D_2O) spectrum of the EK polypeptide.

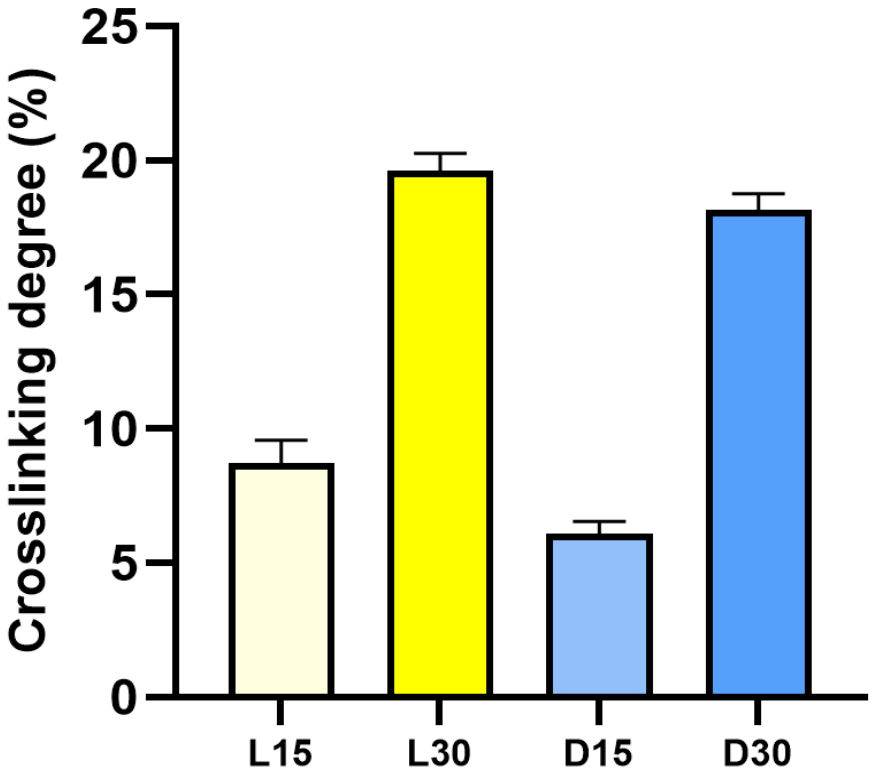

Figure S2. Crosslinking degree of the ZIP hydrogels. The crosslinking degree of the ZIP hydrogel was determined through fluorescamine assay. (n = 3, mean values ± s.d.).

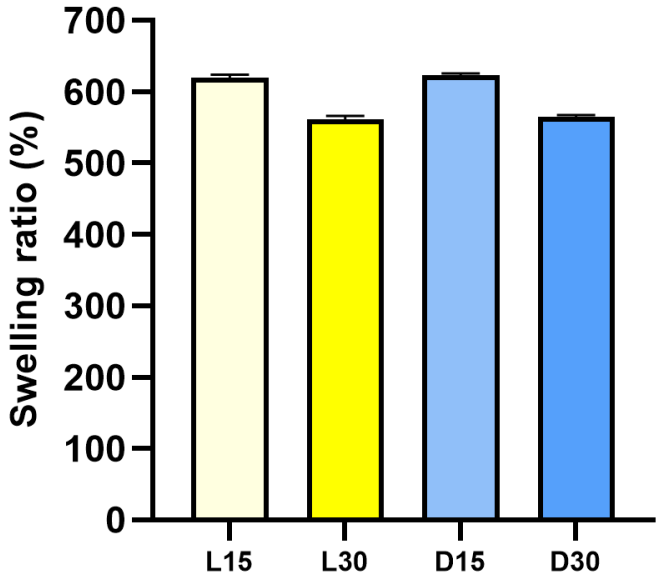

Figure S3. Swelling ratio of the ZIP hydrogels. (n = 3, mean values ± s.d.).

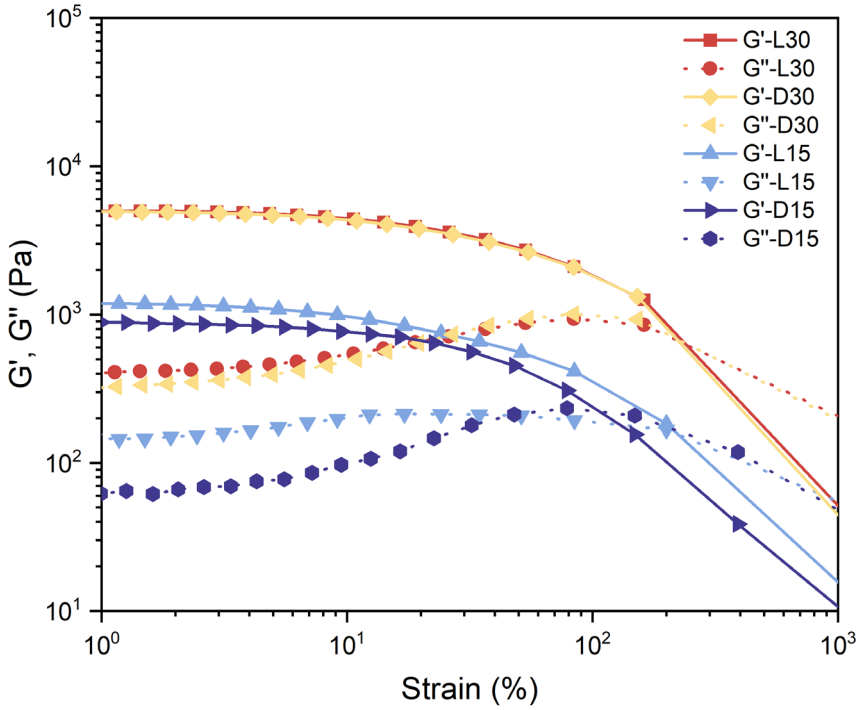

Figure S4. Rheological tests of the ZIP hydrogels. (n = 3).

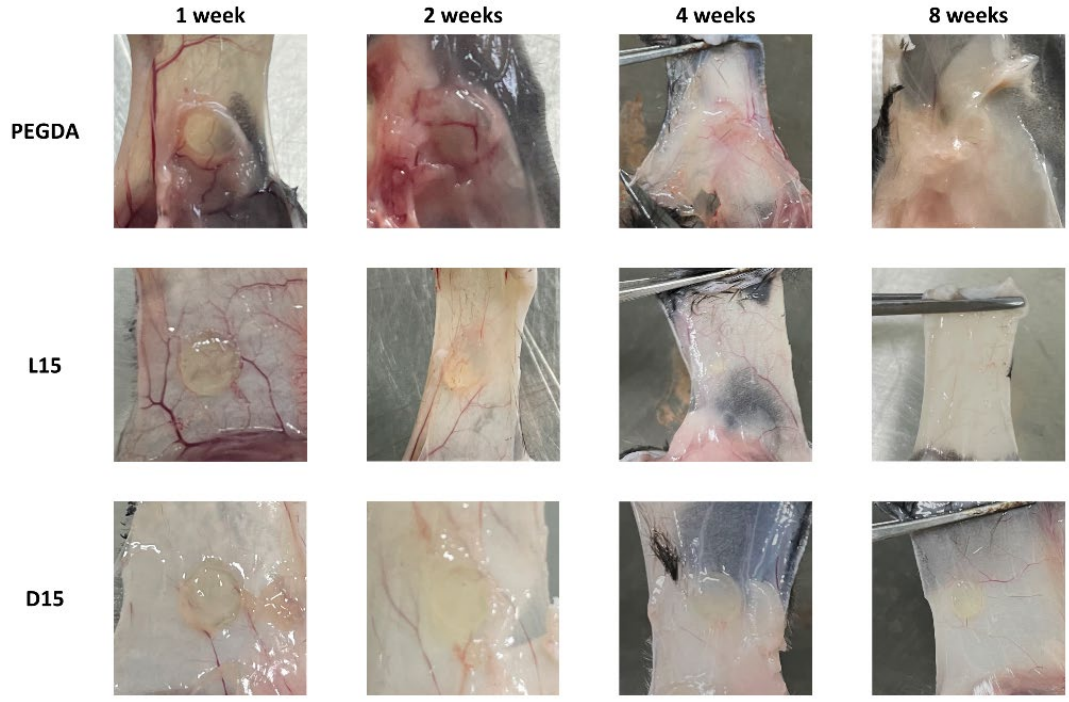

Figure S5. Digital photographs of the ZIP hydrogels at different time points after subcutaneous implantation. (n = 3).

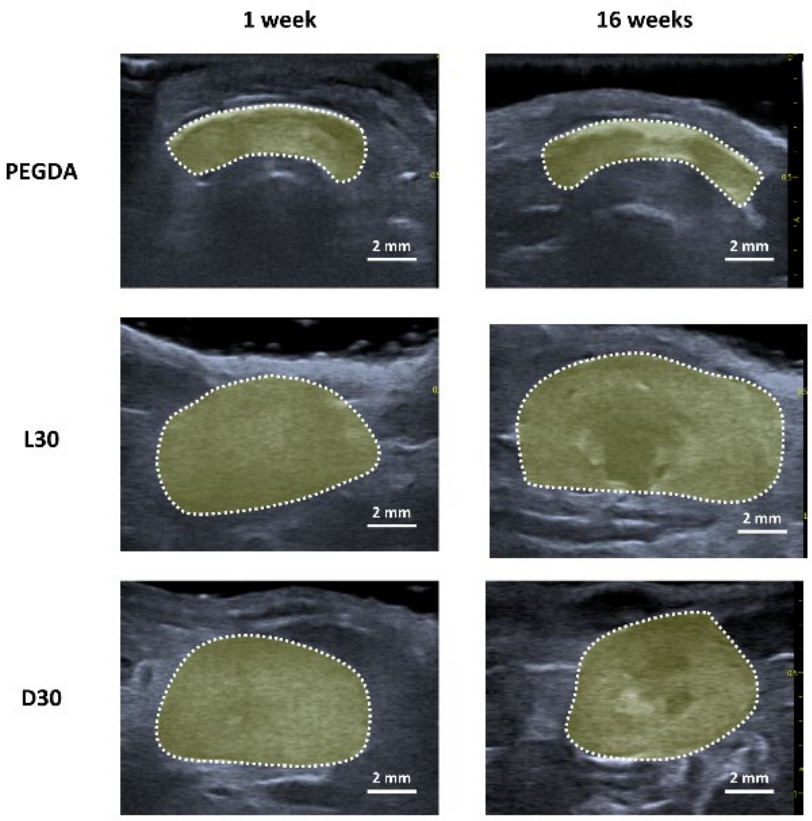

Figure S6. HFUS imaging evaluated changes in the ZIP hydrogels with high crosslinking degrees. (n = 3).

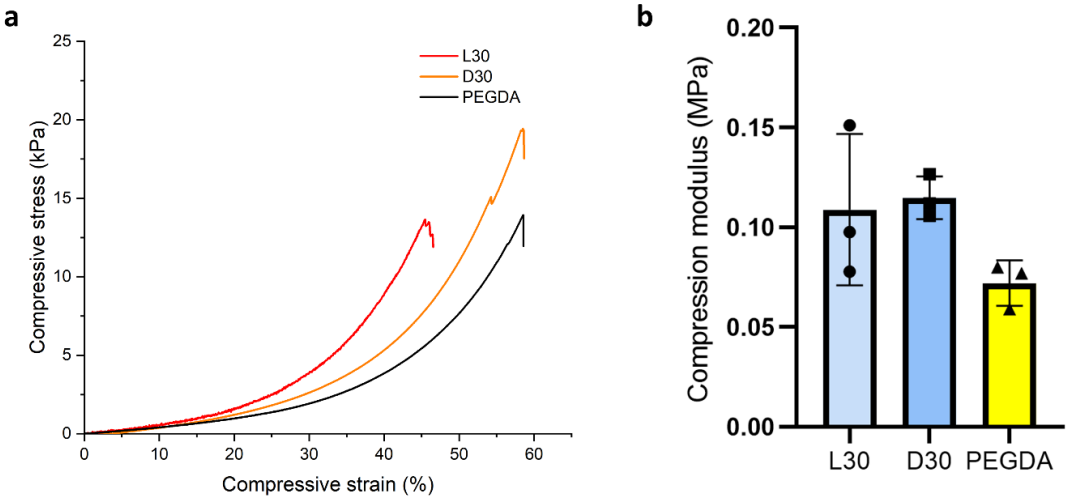

Figure S7. (a) Compressive curves of the hydrogels. (b) Compressive modulus of the hydrogels. (n = 3, mean values ± s.d.).

Figure S8. Appearance and size of the PEGDA and ZIP hydrogels for subsequent animal experiments. All implants have a thickness of 1mm.

Table S1. Characterization of the ZIP hydrogel precursor polymers.
[a] Đ means the dispersity that was measured by GPC.

	Mn (Da)	Mw (Da)	Đ[a]
EK peptide	14111	18200	1.29

Table S2. The components for the ZIP hydrogel preparation.

Hydrogel	Components
L15	10 wt% L-type EK polypeptide in MES buffer, with 15 mol% EDCl
D15	10 wt% D-type EK polypeptide in MES buffer, with 15 mol% EDCl
LD15	5 wt% L-type and 5 wt% D-type EK polypeptide in MES buffer, with 15 mol% EDCl
L30	10 wt% L-type EK polypeptide in MES buffer, with 30 mol% EDCl
D30	10 wt% D-type EK polypeptide in MES buffer, with 30 mol% EDCl

Table S3. The mouse cytokine array coordinates.

Coordinate	Target/Control	Alternate Nomenclature	Coordinate	Target/Control	Alternate Nomenclature
A1, A2	Reference Spot	——	C17, C18	IL-16	——
A23, A24	Reference Spot	——	C19, C20	IL-17	——
B1, B2	BLC	CXCL13/BCA-1	C21, C22	IL-23	——
B3, B4	C5/C5a	Complement Component 5a	C23, C24	IL-27	——
B5, B6	G-CSF	——	D1, D2	IP-10	CXCL10/CRG-2
B7, B8	GM-CSF	——	D3, D4	I-TAC	CXCL11
B9, B10	I-309	CCL1/TCA-3	D5, D6	KC	CXCL1
B11, B12	Eotaxin	CCL11	D7, D8	M-CSF	——
B13, B14	sICAM-1	CD54	D9, D10	JE	CCL2/MCP-1
B15, B16	IFN-γ	——	D11, D12	MCP-5	CCL12
B17, B18	IL-1α	IL-1F1	D13, D14	MIG	CXCL9
B19, B20	IL-1β	IL-1F2	D15, D16	MIP-1α	CCL3
B21, B22	IL-1ra	IL-1F3	D17, D18	MIP-1β	CCL4
B23, B24	IL-2	——	D19, D20	MIP-2	CXCL2
C1, C2	IL-3	——	D21, D22	RANTES	CCL5
C3, C4	IL-4	——	D23, D24	SDF-1	CXCL12
C5, C6	IL-5	——	E1, E2	TARC	CCL17
C7, C8	IL-6	——	E3, E4	TIMP-1	——
C9, C10	IL-7	——	E5, E6	TNF-α	——
C11, C12	IL-10	——	E7, E8	TREM-1	——
C13, C14	IL-13	——	F1, F2	Reference Spot	——
C15, C16	IL-12 p70	——	F23, F24	PBS(Negative Control)	Control(-)

Table S4. List of mouse mRNA primers for qPCR analysis.

Primer	Primer Sequences (5' to 3')
Col1a1	Forward: CCTTCTGGACCCGTTGGCAAAGAT
	Reverse: GGCTACCCTGAGAACCACGAACA
Il1b	Forward: GGCAGGCAGTATCACTCATTGTG
	Reverse: GCTCATGTCCTCATCCTGGAAG
Tnfa	Forward: GACCCTCACACTCAGATCATCTTCT
	Reverse: GCTACGACGTGGGCTACAG
Acta2	Forward: GCACCCAGCACCATGAAGATCAAG
	Reverse: GAAGGTAGACAGCGAAGCCAGGAT
Il17a	Forward: CACCGCAATGAAGACCCTGATA
	Reverse: CCAGGATCTCTTGCTGGATGAGA