CLAIM(S):

1. A porous medium comprising a porous support and a crosslinked polymer coating,

wherein the polymer of the crosslinked polymer coating comprises at least one polymerized monomer (A), at least one polymerized monomer (B), and at least one polymerized monomer (C), and a crosslinking agent selected from propylene glycol diglycidyl ether, glyceryl triglycidyl ether, polyethylene glycol diglycidyl ether, dialdehyde, dihalide, diester, disulfonyl chloride, and diacyl halide,

wherein

monomer (A) has the formula:

$CH_2=C(R^1)–C(=O)–NH–(CH_2)_n–N'R^2R^3$, wherein n is 1-6,

monomer (B) has the formula:

$CH_2=C(R^4)–C(=O)–NR^5R^6$, and

monomer (C) has the formula:

$CH_2=C(R^8)–C(=O)–NH–C(R^7)_2–(CH_2)_m$-X, wherein m is 1-3 and X is SO_3H or COOH;

wherein

R^1, R^4, and R^8 are independently H or C_1-C_6 alkyl, and

R^2, R^3, R^5, R^6, and R^7 are independently H, C_1-C_6 alkyl, C_6-C_{10} aryl, methoxy methyl, or triphenylmethyl.

2. The porous medium of claim 1, wherein R^1 is C_1-C_6 alkyl and R^4 is H.

3. The porous medium of claim 1 or 2, wherein R^1 is methyl.

4. The porous medium of any one of claims 1-3, wherein R^2 and R^3 are H, and R^5 and R^6 are independently C_1-C_6 alkyl,

5. The porous medium of any one of claims 1-4, wherein R^2 and R^3 are H, and R^5 and R^6 are methyl.

6. The porous medium of any one of claims 1-3, wherein R^2, R^3, R^5, and R^6 are independently H, methyl, phenyl, methoxy methyl, or triphenylmethyl.

7. The porous medium of any one of claims 1-3, wherein R^2 and R^3 are H, and R^5 and R^6 are independently methyl, phenyl, methoxy methyl, or triphenylmethyl.

8. The porous medium of any one of claims 1-3, wherein R^7 is alkyl.

9. The porous medium of claim 8, wherein R^7 is methyl.

10. The porous medium of any one of claims 1-9, wherein the crosslinked polymer comprises one polymerized monomer (A), one polymerized monomer (B), and one polymerized monomer (C).

11. The porous medium of any one of claims 1-9, wherein the crosslinked polymer comprises one polymerized monomer (A), one polymerized monomer (B), and two different polymerized monomers (C).

12. The porous medium of claim 11, wherein X in one of the polymerized monomers (C) is SO_3H and X in the other polymerized monomer (C) is COOH.

13. The porous medium of any one of claims 1-12, which is a porous membrane.

14. The porous medium of any one of claims 1-12, which is a bead or fiber.

15. A method for producing a porous medium according to any one of claims 1-14, comprising:

(i) polymerizing mixture of monomers (A), (B), and (C), to obtain a terpolymer and

(ii) coating the terpolymer obtained in (i) on a porous support with the crosslinking agent and crosslinking *in situ* to obtain a crosslinked terpolymer coating disposed on the porous support.

16. The method of claim 15, wherein the crosslinking agent is selected from propylene glycol diglycidyl ether, glyceryl triglycidyl ether, polyethylene glycol diglycidyl

ether, glycol dimesylate ester, and glycol dimesoyl chloride, ditosylate ester, and any combination thereof.

17. A method of treating a fluid containing a desired protein and one or more impurities, the method comprising contacting the fluid with the porous medium of any one of claims 1-14 and recovering the desired protein with a reduced concentration of the impurities.

18. The method of claim 17, wherein the desired protein is an antibody.

19. The method of claim 17, wherein the desired protein is a biologic.

20. A method of treating a fluid containing trace metals, the method comprising contacting the fluid with the porous medium of any one of claims 1-12 or claim 14 or with the porous membrane of claim 13 and recovering a fluid containing a reduced concentration of trace metals.