[CLAIMS]

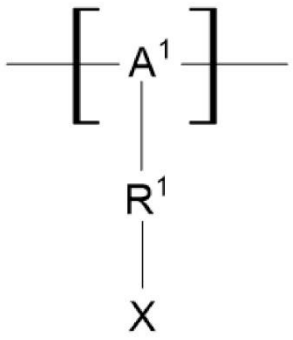
1. A polymer included in a reagent layer of a sensor for measuring an analyte in a sample, comprising:

a first binding site covalently bonded to a protein acting on the analyte; and

a second binding site that binds to the protein by electrostatic interaction,

the polymer comprising, as structural units:

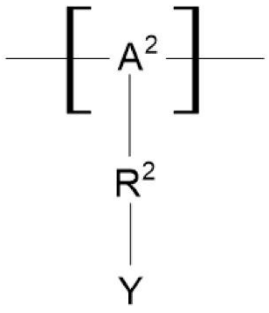
a first monomer represented by formula (1); and



(1)

[In formula (1), A^1 is a hydrocarbon group that optionally has a substituent or includes a heteroatom in a main chain, R^1 is a hydrocarbon group that optionally has a substituent, an acyl group that optionally has a substituent, an oxyacyl group that optionally has a substituent, or a phenylene group that optionally has a substituent, X is a functional group that can be covalently bonded to the protein, and, when there are a plurality of first monomers, A^1, R^1 and X are the same or different]

a second monomer represented by formula (2)



(2)

[In formula (2), A^2 is a hydrocarbon group that optionally has a substituent or includes a heteroatom in a main chain, and R^2 is a hydrocarbon group that optionally has a substituent, an acyl group that optionally has a substituent, an oxyacyl group that optionally has a substituent, or a phenylene group that optionally has a substituent, Y is a functional group that can bind to the protein by electrostatic interaction, and, when there are a plurality of second monomers, A^2, R^2 and Y are the same or different],

wherein the functional group X is a group derived from at least one selected from the group consisting of amine, alcohol, phenol, thiols, carboxylic acid, hydrazine, alkoxyamine, hydroxyamine, imidazole, pyridine, acyl azide, acyl halide, alkyl halide, acid anhydride, aldehyde, ketone, alkyl sulfonate, maleimide, epoxide, aziridine, isocyanate, isothiocyanate, imidoester, sulfonyl halide, and activated ester, and

wherein the functional group Y is a cationic group derived from at least one selected from the group consisting of quaternary ammonium, quaternary phosphonium, tertiary

sulfonium, and aromatic cation, or is an anion group derived from at least one selected from the group consisting of carboxylic acid, phosphonic acid, and sulfonic acid.

2. The polymer according to claim 1,

wherein the protein is an oxidoreductase.

3. The polymer according to claim 2,

wherein the polymer includes a third binding site that covalently binds to a redox mediator having electron transfer capability.

4. The polymer according to claim 3,

wherein the first binding site and the third binding site have the same functional group.

5. A reagent layer of a sensor for measuring an analyte in a sample, comprising:

the polymer according to any one of claims 1 through 4; and

the protein that binds to the polymer and also acts on the analyte.

6. The reagent layer according to claim 5, comprising:

a first crosslinking agent that binds the protein and the first binding site.

7. The reagent layer according to claim 5 or 6,

wherein the protein is an oxidoreductase, and

wherein the polymer includes a third binding site that covalently binds to a redox mediator having electron transfer capability, and

wherein the reagent layer includes the redox mediator that binds to the polymer.

8. The reagent layer according to claim 7, comprising:

a second crosslinking agent that binds the redox mediator and the third binding site.

9. The reagent layer according to claim 8, comprising:

a first crosslinking agent that binds the oxidoreductase and the first binding site,

wherein the first crosslinking agent and the second crosslinking agent are the same crosslinking agent.

10. The reagent layer according to any one of claims 5 through 9,

wherein the reagent layer includes a plurality of polymers,

wherein each polymer has a fourth binding site that covalently binds to other polymers, and

wherein the reagent layer includes a third crosslinking

agent that binds the fourth binding sites to each other.

11. The reagent layer according to claim 10, wherein the protein is an oxidoreductase, and

wherein the polymer includes a third binding site that covalently binds to a redox mediator having electron transfer capability, and

wherein at least two of the first binding site, the third binding site, and the fourth binding site have the same functional group, and

wherein the reagent layer includes the redox mediator that binds to the polymer.

12. The reagent layer according to claim 10 or 11,

wherein the protein is an oxidoreductase,

wherein the polymer includes a third binding site that covalently binds to a redox mediator having electron transfer capability,

wherein the reagent layer includes a first crosslinking agent that binds the oxidoreductase and the first binding site, and a second crosslinking agent that binds the redox mediator and the third binding site, and

wherein at least two of the first crosslinking agent, the second crosslinking agent, and the third crosslinking agent are the same crosslinking agent, and

wherein the reagent layer includes the redox mediator

that binds to the polymer.

13. A sensor comprising:

an electrode part that includes a working electrode and a counter electrode; and

the reagent layer according to any one of claims 5 through 12 arranged so as to be in contact with the working electrode.

14. The sensor according to claim 13, comprising:

a protective layer that covers the reagent layer.