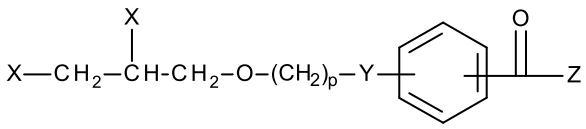
CLAIMS

1. A compound of the general formula:



(I)

in which each X independently represents a polymer chain; p represents an integer from 1 to 6; Y represents an amide group; and Z represents either -CH.(CH_2L)$_2$ or -C(CH_2L)(=CH_2), in which each L independently represents a leaving group.

2. A compound as claimed in Claim 1, in which each X represents a poly(alkylene glycol), polyvinylpyrrolidone, polyacrylate, polymethacrylate, polyoxazoline, polyvinylalcohol, polyacrylamide, polymethacrylamide, HPMA copolymer, polyester, polyacetal, poly(ortho ester), polycarbonate, poly(imino carbonate), polyamide, or polysaccharide.

3. A compound as claimed in Claim 1, in which each X represent poly(ethylene glycol).

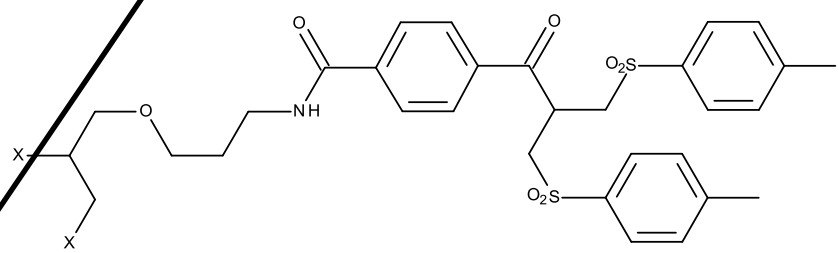
4. A compound as claimed in any preceding claim, in which Y represents -NH-CO-.

5. A compound as claimed in any preceding claim, in which p is 3.

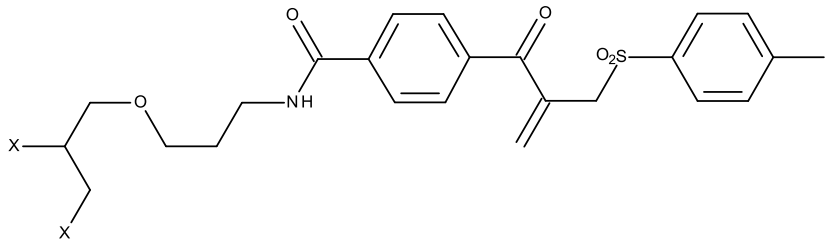
6. A compound as claimed in any preceding claim, in which each L independently represents -SR, -SO_2R, -OSO_2R, -N^+R_3, -N^+HR_2, -N^+H_2R, halogen, or –OØ, in which R represents a hydrogen atom or an alkyl, aryl or alkyl-aryl group, and Ø represents a substituted aryl group containing at least one electron withdrawing substituent.

7. A compound as claimed in Claim 6, in which each L independently represents phenylsulfonyl or tosyl.

8. A compound as claimed in Claim 1, having the formula:

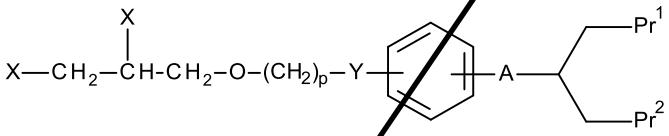


or



9. A compound as claimed in Claim 8, in which each X independently represents polyethylene glycol of the formula CH_3O-$(CH_2CH_2O)_m$- in which m is the number of ethylene oxide units in X.

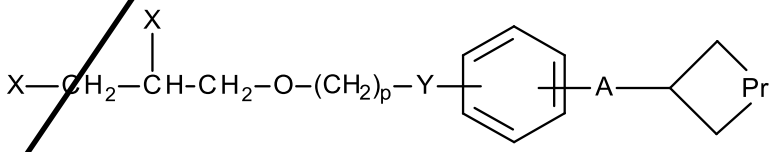
10. A compound of the general formula:



IIb

in which X, p and Y have the meanings given in any of the preceding claims, A represent a group CO, CHOH, $CH.NH_2$, CH.NHR, $CH.NR_2$, CH.OR CH.O.C(O)R, CH.NHC(O)R, or $CH.N(C(O)R)_2$, in which each R represents a hydrogen atom or an alkyl, aryl or alkyl-aryl group, and either each of Pr^1 and Pr^2 represents a separate protein or peptide molecule or both of Pr^1 and Pr^2 together represent a single protein or peptide bonded at two separate points.

11. A compound as claimed in Claim 10, having the general formula:



IIc

in which X, p, Y and A have the meanings given in Claim 10, and Pr represents a single protein or peptide bonded at two separate points.

12. A compound as claimed in Claim 11, in which Pr represents a single protein or peptide bonded to two sulfur atoms derived from a disulfide bond in the protein or peptide, or to two histidine residues present in a polyhistidine tag attached to the protein or peptide.

13. A compound as claimed in Claim 11 or Claim 12, in which Pr represents an IgG Fab fragment, INF-α, IFN-β, or consensus IFN.

14. A process for the preparation of a compound as claimed in any of Claims 10 to 13, which comprises reacting a compound as claimed in any of Claims 1 to 9 with a protein or a peptide; and optionally reducing the keto group in the resulting conjugate.

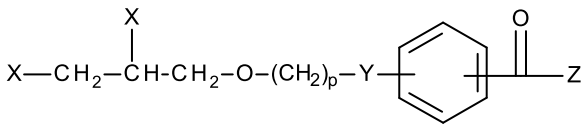
15. A pharmaceutical composition comprising a compound as claimed in any of Claims 1 to 9, together with a pharmaceutically acceptable carrier, and optionally also containing a further active ingredient.

16. A compound as claimed in any of Claims 1 to 9 or a composition as claimed in Claim 15, for use in therapy.

17. A compound as claimed in any of Claims 1 to 9 or a composition as claimed in Claim 15 for use in a method of treating a patient, in which the method comprises administering a pharmaceutically-effective amount of the compound or the pharmaceutical composition to the patient.

CLAIMS

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(I)

in which each X independently represents a polymer chain; p represents an integer from 1 to 6; Y represents an amide group; and Z represents either -CH.$(CH_2L)_2$ or -C$(CH_2L)(=CH_2)$, in which each L independently represents a leaving group.

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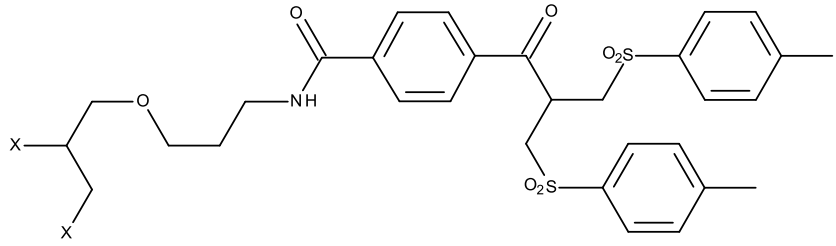
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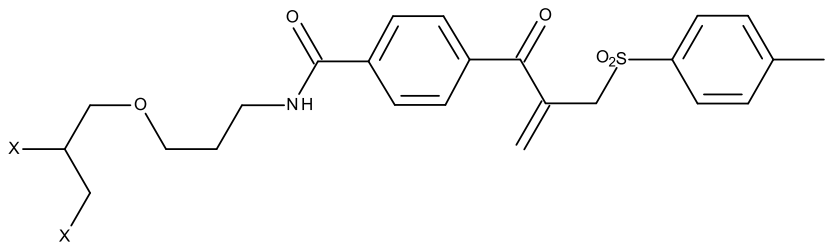
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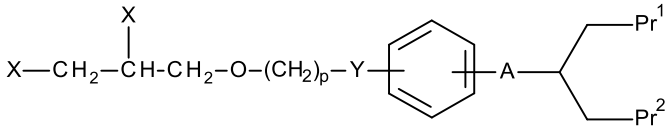


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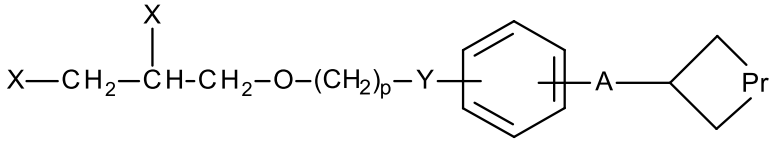
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IIb

in which X, p and Y have the meanings given in any of the preceding claims, A represent a group CO, CHOH, $CH.NH_2$, CH.NHR, $CH.NR_2$, CH.OR CH.O.C(O)R, CH.NHC(O)R, or $CH.N(C(O)R)_2$, in which each R represents a hydrogen atom or an alkyl, aryl or alkyl-aryl group, and either each of Pr^1 and Pr^2 represents a separate protein or peptide molecule or both of Pr^1 and Pr^2 together represent a single protein or peptide bonded at two separate points.

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IIc

in which X, p, Y and A have the meanings given in Claim 10, and Pr represents a single protein or peptide bonded at two separate points.

12. A compound as claimed in Claim 11, in which Pr represents a single protein or peptide bonded to two sulfur atoms derived from a disulfide bond in the protein or peptide, or to two histidine residues present in a polyhistidine tag attached to the protein or peptide.

13. A compound as claimed in Claim 11 or Claim 12, in which Pr represents an IgG Fab fragment, INF-α, IFN-β, or consensus IFN.

14. A process for the preparation of a compound as claimed in any of Claims 10 to 13, which comprises reacting a compound as claimed in any of Claims 1 to 9 with a protein or a peptide; and optionally reducing the keto group in the resulting conjugate.

15. A pharmaceutical composition comprising a compound as claimed in any of Claims 1 to 9, together with a pharmaceutically acceptable carrier, and optionally also containing a further active ingredient.

16. A compound as claimed in any of Claims 1 to 9 or a composition as claimed in Claim 15, for use in therapy.