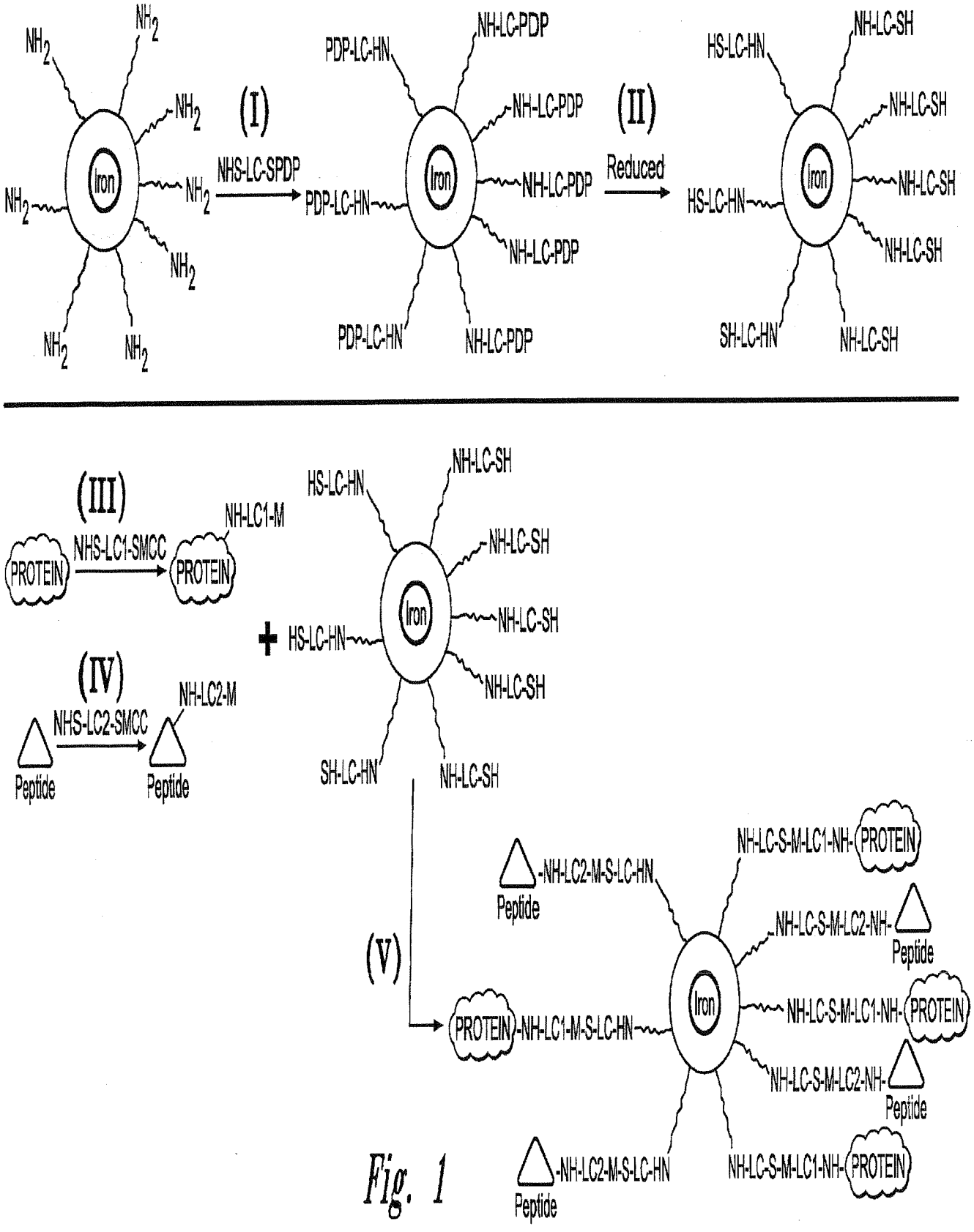

(I)
NHS-LC-SPDP
(II)
Reduced
(III)
NHS-LC1-SMCC
(IV)
NHS-LC2-SMCC
(V)
Iron
PROTEIN
Peptide
NH-LC-PDP
PDP-LC-HN
NH-LC-SH
HS-LC-HN
SH-LC-HN
NH-LC1-M
NH-LC2-M
NH-LC-S-M-LC1-NH-
NH-LC-S-M-LC2-NH-
-NH-LC1-M-S-LC-HN
-NH-LC2-M-S-LC-HN

Fig. 1

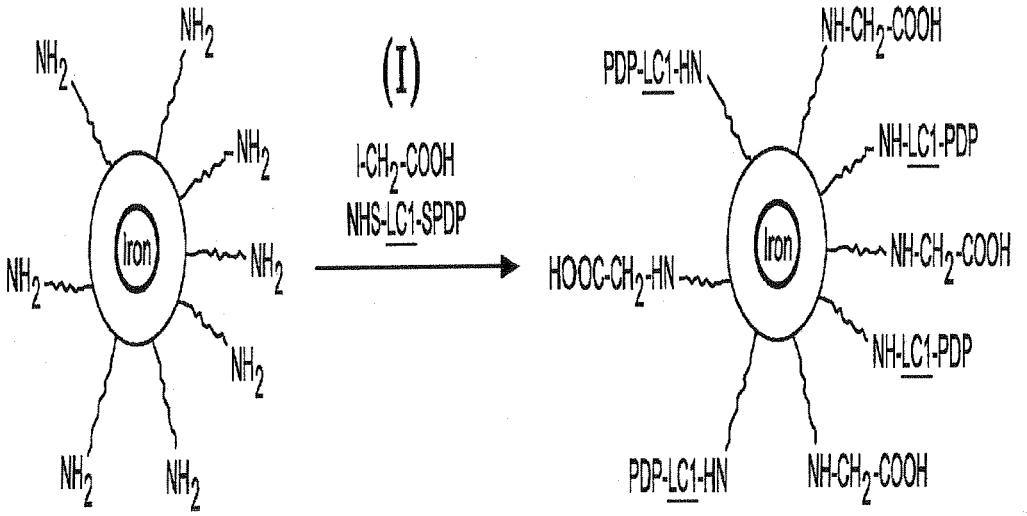
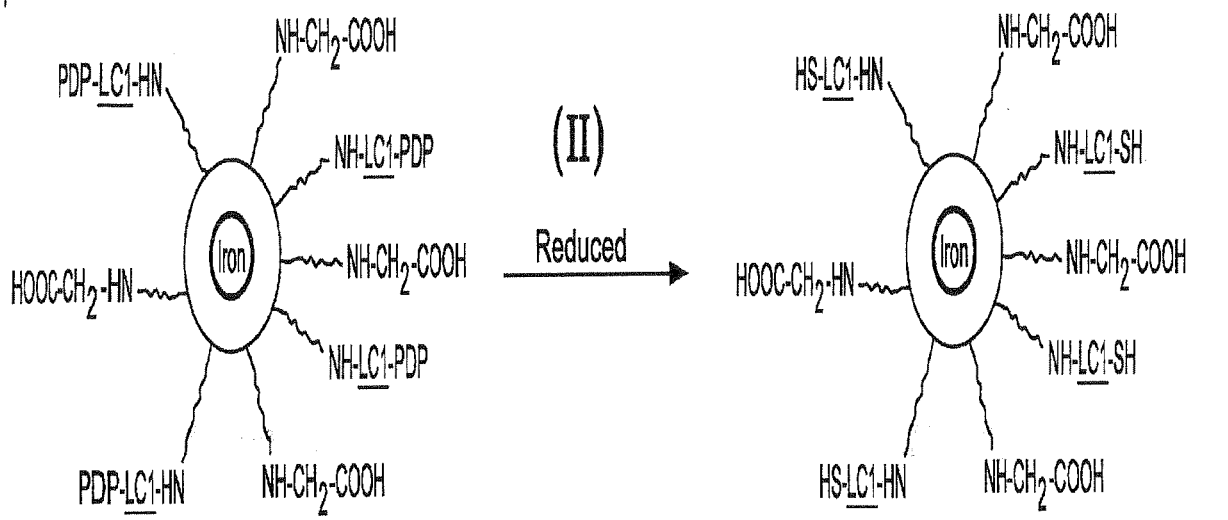

(I)
I-CH2-COOH
NHS-LC1-SPDP
Iron
NH2
PDP-LC1-HN
NH-CH2-COOH
NH-LC1-PDP
HOOC-CH2-HN

Fig. 2A

Fig. 2B


(II)
Reduced
Iron
PDP-LC1-HN
NH-CH2-COOH
NH-LC1-PDP
HOOC-CH2-HN
HS-LC1-HN
NH-LC1-SH

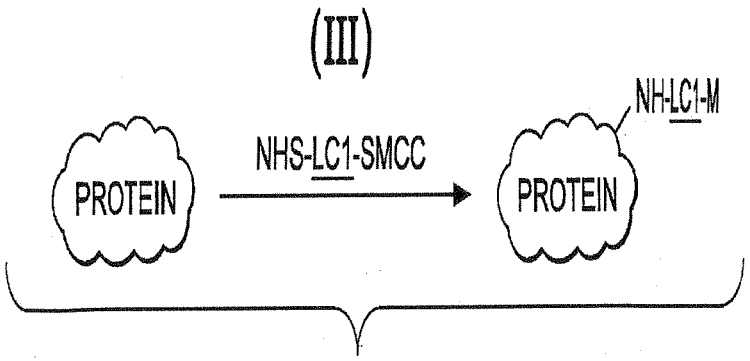
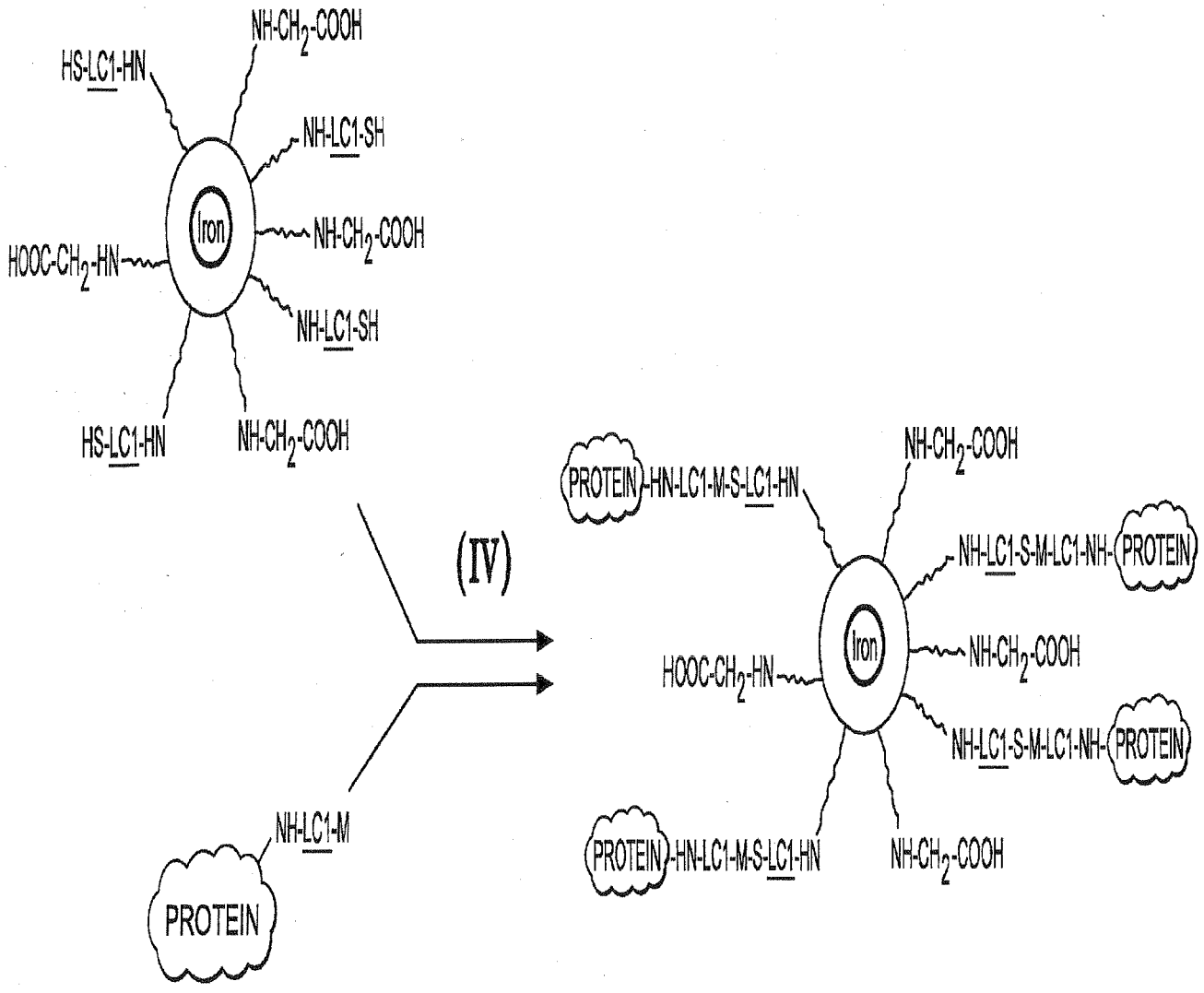

(III)
PROTEIN
NHS-LC1-SMCC
PROTEIN
NH-LC1-M

Fig. 2C

Fig. 2D


NH-CH2-COOH
HS-LC1-HN
NH-LC1-SH
Iron
HOOC-CH2-HN
NH-CH2-COOH
NH-LC1-SH
HS-LC1-HN
NH-CH2-COOH
(IV)
PROTEIN-HN-LC1-M-S-LC1-HN
NH-CH2-COOH
NH-LC1-S-M-LC1-NH-PROTEIN
Iron
HOOC-CH2-HN
NH-CH2-COOH
NH-LC1-S-M-LC1-NH-PROTEIN
PROTEIN-HN-LC1-M-S-LC1-HN
NH-CH2-COOH
NH-LC1-M
PROTEIN

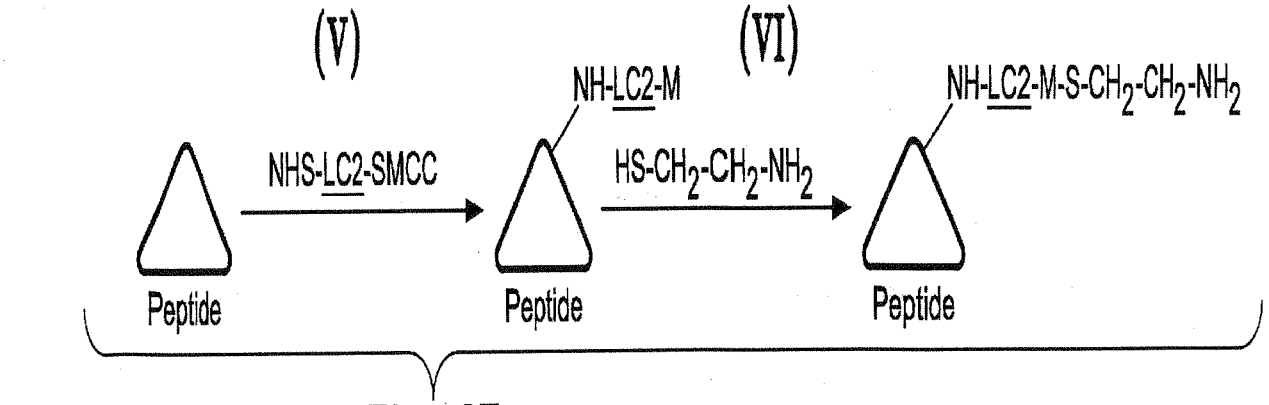
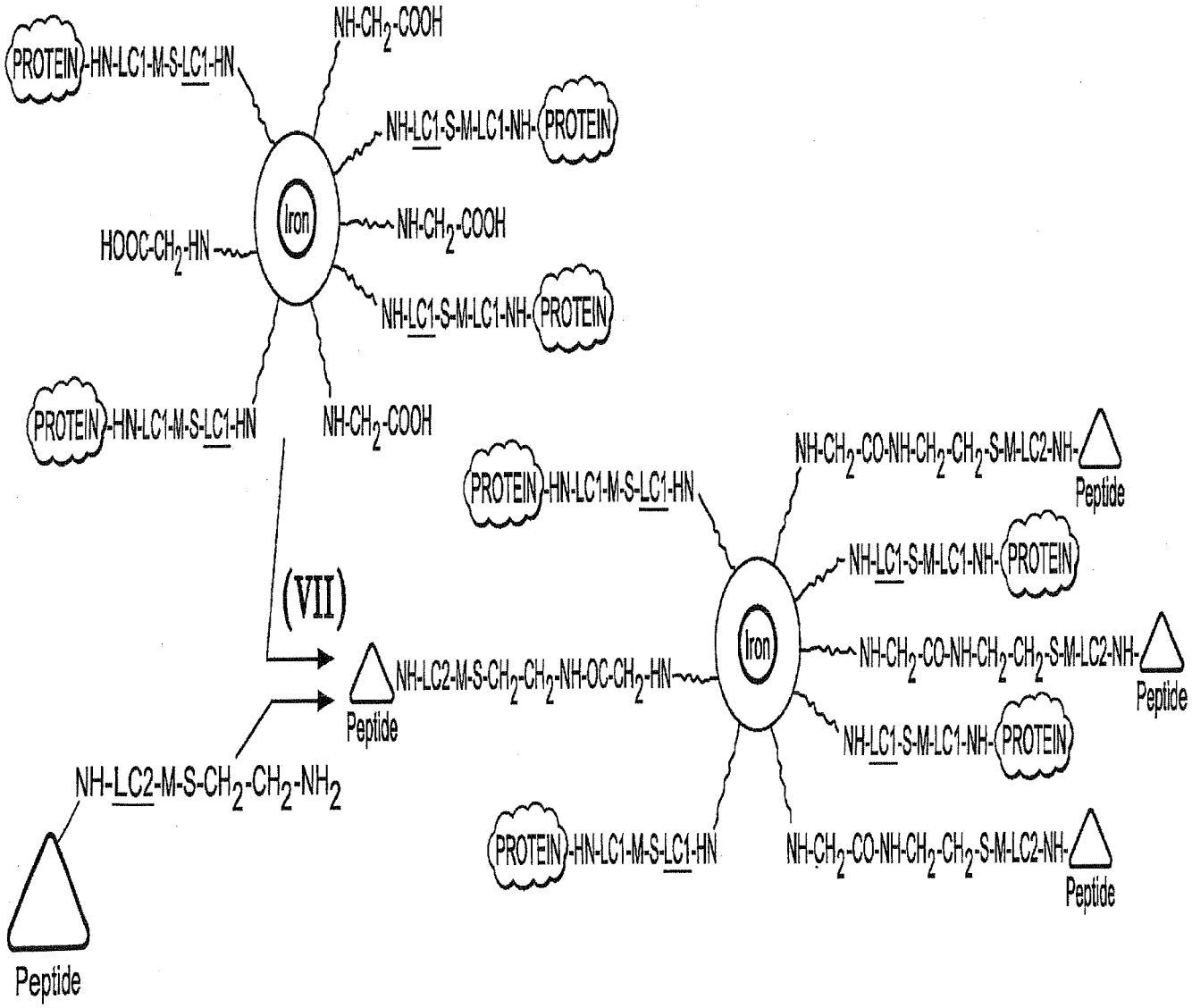

(V)
(VI)
NHS-LC2-SMCC
NH-LC2-M
HS-CH2-CH2-NH2
NH-LC2-M-S-CH2-CH2-NH2
Peptide
Peptide
Peptide

Fig. 2E *Fig. 2F*


PROTEIN-HN-LC1-M-S-LC1-HN
NH-CH2-COOH
NH-LC1-S-M-LC1-NH-PROTEIN
Iron
HOOC-CH2-HN
NH-CH2-COOH
NH-LC1-S-M-LC1-NH-PROTEIN
PROTEIN-HN-LC1-M-S-LC1-HN
NH-CH2-COOH
(VII)
NH-LC2-M-S-CH2-CH2-NH-OC-CH2-HN
Peptide
NH-LC2-M-S-CH2-CH2-NH2
Peptide
PROTEIN-HN-LC1-M-S-LC1-HN
NH-CH2-CO-NH-CH2-CH2-S-M-LC2-NH-
Peptide
NH-LC1-S-M-LC1-NH-PROTEIN
Iron
NH-CH2-CO-NH-CH2-CH2-S-M-LC2-NH-
Peptide
NH-LC1-S-M-LC1-NH-PROTEIN
PROTEIN-HN-LC1-M-S-LC1-HN
NH-CH2-CO-NH-CH2-CH2-S-M-LC2-NH-
Peptide

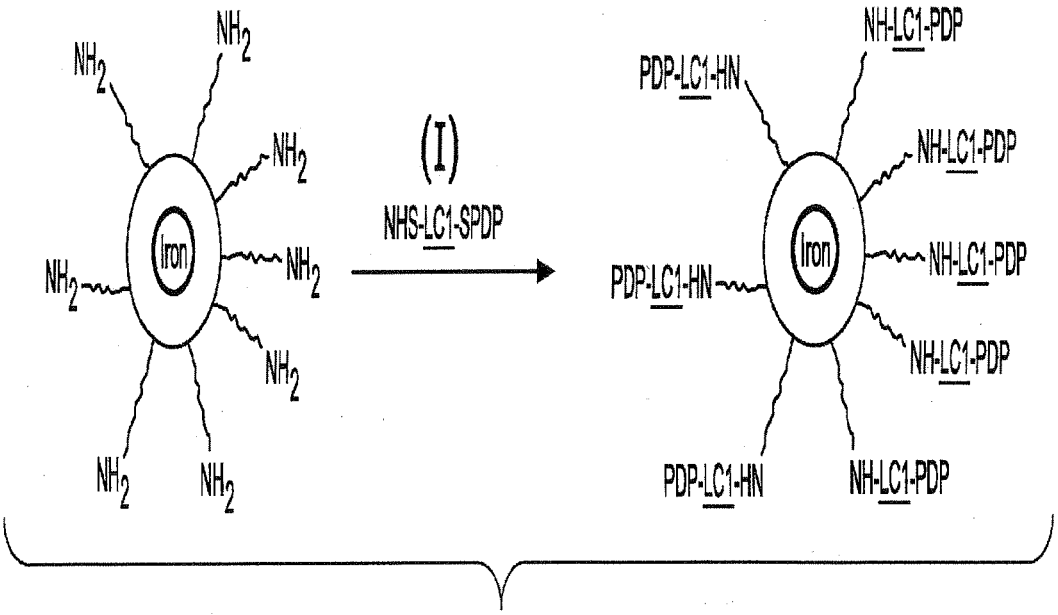
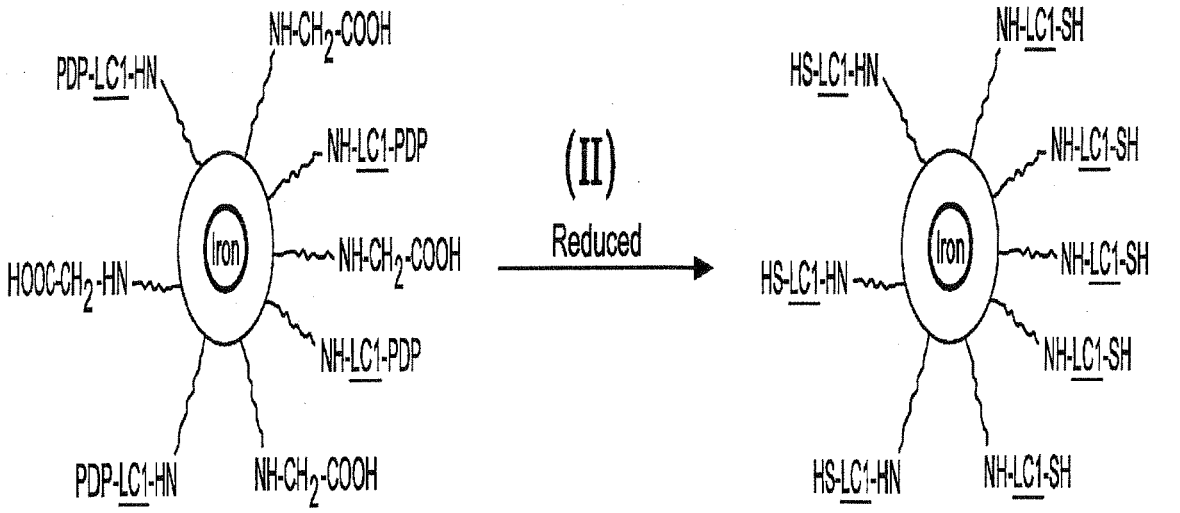

NH2
NH2
NH2
NH2
NH2
NH2
NH2
NH2
Iron
(I)
NHS-LC1-SPDP
NH-LC1-PDP
PDP-LC1-HN
NH-LC1-PDP
PDP-LC1-HN
NH-LC1-PDP
NH-LC1-PDP
PDP-LC1-HN
NH-LC1-PDP
Iron

Fig. 3A

Fig. 3B


NH-CH2-COOH
PDP-LC1-HN
NH-LC1-PDP
HOOC-CH2-HN
NH-CH2-COOH
NH-LC1-PDP
PDP-LC1-HN
NH-CH2-COOH
Iron
(II)
Reduced
NH-LC1-SH
HS-LC1-HN
NH-LC1-SH
HS-LC1-HN
NH-LC1-SH
NH-LC1-SH
HS-LC1-HN
NH-LC1-SH
Iron

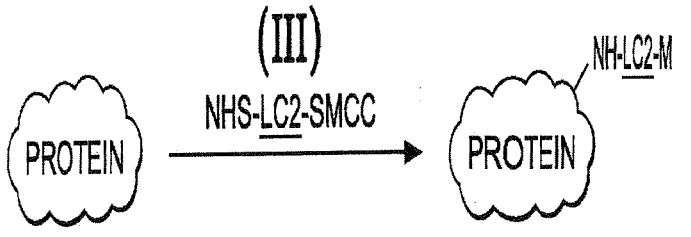
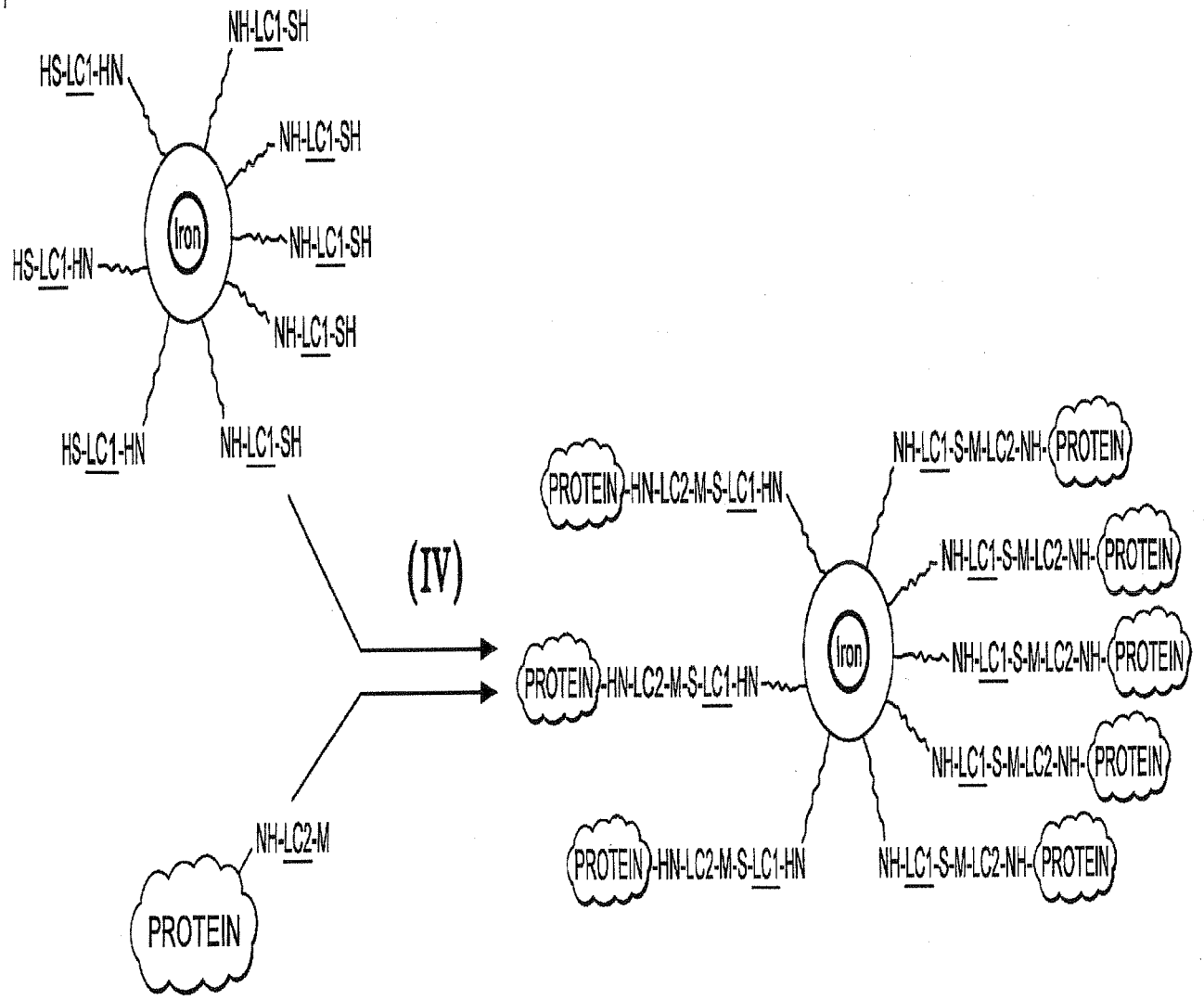

(III)
NHS-LC2-SMCC
PROTEIN
PROTEIN
NH-LC2-M

Fig. 3C

Fig. 3D


NH-LC1-SH
HS-LC1-HN
NH-LC1-SH
Iron
HS-LC1-HN
NH-LC1-SH
NH-LC1-SH
HS-LC1-HN
NH-LC1-SH
(IV)
NH-LC2-M
PROTEIN
PROTEIN-HN-LC2-M-S-LC1-HN
PROTEIN-HN-LC2-M-S-LC1-HN
PROTEIN-HN-LC2-M-S-LC1-HN
NH-LC1-S-M-LC2-NH-PROTEIN
NH-LC1-S-M-LC2-NH-PROTEIN
NH-LC1-S-M-LC2-NH-PROTEIN
NH-LC1-S-M-LC2-NH-PROTEIN
NH-LC1-S-M-LC2-NH-PROTEIN
Iron