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- Transcortin cortisol binding \( \beta \)-globulin
- \( \gamma \)-globulin, transferrins
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- Bilirubin-protein in eel serum
- Rat fetal protein from albumin
- Immunoglobulins
- Bovine serum
- Albumin
- Ovalbumin
- Intact platelet membranes
- E. coli nuclease
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- Enzymes-cellulases (some proteases)
- Butyrylcholinesterases from human brain
- Pancreatic enzymes
- Bromelain —acid phosphatase from ananas comosus
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- Mitochondrial transaminases
- D-aspartic oxidase
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- Lactoperoxidase
- Invertase from yeast

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Haemoglobin
Isoenzymes of alcohol dehydrogenase
Soluble grape proteins
Influenza virus and adenovirus
Hepes simplex virus proteins
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Insulin
Glycopeptides of fibrinogen and platelets
Chondroitin sulfate glycoproteins
Myoglobin
Ferritin
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REFERENCES
(2) A. McKillop, E. C. Taylor et al., ibid, 29, 2427 (1969)
(3) A. McKillop, D. Bromley and E. C. Taylor, ibid, 21, 1623 (1969)
(8) E. C. Taylor, G. W. McLeay and A. McKillop, ibid, 90, 2422 (1968)
(10) E. C. Taylor, Y. Maki and A. McKillop, ibid, 34, 1170 (1969)

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<td>Ethyl acetoacetate, thallous salt</td>
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<td>15,386-9</td>
<td>Diethyl malonate, thallous salt</td>
<td>$5.75/10 g.</td>
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<td>15,387-7</td>
<td>Ethyl benzoylacetae, thallous salt</td>
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<td>15,388-5</td>
<td>Acetylacetone, thallous salt</td>
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<td>Thallous phenoxide</td>
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