LECTINS FROM SIGMA

Although we have a lot to learn about lectins, we are now preparing numerous types with various purities. A Data Sheet enclosed with each shipment indicates a) agglutination levels with appropriate red blood cells b) levels of various sugars that inhibit red cell agglutination c) disc electrophoresis data and d) mitogenic levels when applicable. We will look forward to criticism and suggestions, so that Sigma will ultimately offer the most complete list of high purity Lectins available anywhere in the world. Many reports indicate the need for Calcium and Manganese ions to "stabilize" the lectin. Pending further studies and comments from our customers, most of our lectins will contain about 0.05% free Calcium and 0.05% free Manganese. Although not shown on most labels, competitive preparations we have tested generally contain Calcium and Manganese also.

<table>
<thead>
<tr>
<th>From Banderaea simplificata seeds</th>
<th>1 mg £ 6.12</th>
<th>L 8629 From Kidney Bean, Type III</th>
<th>Agglutinates Type A red cells at approx. 10 µg Lectin per ml of 2% red cells.</th>
<th>2 mg £ 7.98</th>
</tr>
</thead>
<tbody>
<tr>
<td>L 2380</td>
<td>5 mg 21.25</td>
<td>Erythroagglutinin</td>
<td>Agglutinates Type A red cells at approx. 20 µg Lectin per ml of 2% red cells.</td>
<td>5 mg 21.29</td>
</tr>
<tr>
<td>From Castor Bean, Type I</td>
<td>2 mg 4.79</td>
<td>Leucoagglutinin</td>
<td>Does not agglutinate Type A or O red cells.</td>
<td>2 mg 7.98</td>
</tr>
<tr>
<td>L 8879</td>
<td>5 mg 7.12</td>
<td></td>
<td>Induces mitosis in human leucocytes at approx. 25 µg/ml of culture media.</td>
<td>5 mg 15.97</td>
</tr>
<tr>
<td>From Castor Bean, Type II</td>
<td>2 mg 3.19</td>
<td>Phytohemagglutinin, Crude</td>
<td>From Kidney Bean, Type V</td>
<td>2 mg 1.60</td>
</tr>
<tr>
<td>L 9004</td>
<td>5 mg 9.06</td>
<td></td>
<td>Agglutinates Type A red cells at approx. 10 µg Lectin per ml of 2% red cells.</td>
<td>5 mg 3.90</td>
</tr>
<tr>
<td>From Castor Bean, Crude</td>
<td>2 mg 3.99</td>
<td></td>
<td>Agglutinates Type A red cells at approx. 10 µg Lectin per ml of 2% red cells.</td>
<td>2 mg 7.98</td>
</tr>
<tr>
<td>L 9129</td>
<td>5 mg 6.65</td>
<td></td>
<td>From Lentil</td>
<td>1 mg 3.07</td>
</tr>
<tr>
<td>From Gorse</td>
<td>Inquire</td>
<td></td>
<td>Major affinity: Glucose and Mannose residues.</td>
<td>5 mg 10.25</td>
</tr>
<tr>
<td>L 5505</td>
<td>2 mg 8.54</td>
<td></td>
<td>Agglutinates Type A red cells at approx. 4 µg Lectin per ml of 2% red cells.</td>
<td>10 mg 17.08</td>
</tr>
<tr>
<td>From Horse Gram</td>
<td>Inquire</td>
<td></td>
<td>From Lime Bean</td>
<td>Inquire</td>
</tr>
<tr>
<td>From Horsehoe Crab</td>
<td>0.25 mg £11.97</td>
<td></td>
<td>From Peanut</td>
<td>1 mg 8.51</td>
</tr>
<tr>
<td>L 0256</td>
<td>0.50 mg 21.25</td>
<td>Major affinity: Sialic acid residues.</td>
<td>Agglutinates desilated human red blood cells at approx. 10 µg Lectin per ml of 2% red cells.</td>
<td>2 mg 15.97</td>
</tr>
<tr>
<td>From Jack Beans</td>
<td>25 mg £ 1.25</td>
<td></td>
<td>L 9379 From Kidney Bean, Type I</td>
<td>5 mg 3.19</td>
</tr>
<tr>
<td>C 2631</td>
<td>100 mg 2.68</td>
<td>Contains approx. 15% Protein and 85% Sodium Chloride.</td>
<td>Agglutinates Type O red cells at approx. 80 µg Lectin per ml of 2% red cells.</td>
<td>8 mg 4.79</td>
</tr>
<tr>
<td>From Jack Beans</td>
<td>10 mg 10.05</td>
<td>Substantially free of carbohydrates.</td>
<td>Leucinates in human leucocytes at approx. 2.5 µg/ml in McCoy’s medium 5a modified.</td>
<td>40 mg 22.35</td>
</tr>
<tr>
<td>C 2010</td>
<td>500 mg 12.81</td>
<td>Prices based on protein content.</td>
<td>Prices based on protein content.</td>
<td>50 mg 22.35</td>
</tr>
<tr>
<td>From Jack Beans</td>
<td>1 g 21.35</td>
<td></td>
<td>From Soybean, Type VI</td>
<td>2 mg 8.51</td>
</tr>
<tr>
<td>L 5755</td>
<td>2 mg 11.97</td>
<td>Major affinity: Galactose residues.</td>
<td>Agglutinates Type A red cells at approx. 20 µg Lectin per ml of 2% red cells.</td>
<td>5 mg 16.50</td>
</tr>
<tr>
<td>From Jequirity Bean, Toxin</td>
<td>5 mg 21.29</td>
<td></td>
<td>L 8004 From Kidney Bean, Type VII</td>
<td>2 mg 7.98</td>
</tr>
<tr>
<td>L 9505</td>
<td>1 mg £13.30</td>
<td>Major affinity: Galactose residues.</td>
<td>Major affinity: N-Acetylgalactosamine residues.</td>
<td>5 mg 15.97</td>
</tr>
<tr>
<td>From Lotus tetragonolobus</td>
<td>5 mg 42.57</td>
<td>Agglutinates Type A red cells at approx. 10 µg Lectin per ml of 2% red cells.</td>
<td>Three major bands on electrophoresis.</td>
<td>5 mg 6.39</td>
</tr>
<tr>
<td>L 9254</td>
<td>2 mg £11.97</td>
<td>Major affinity: L-Fucose residues.</td>
<td>Agglutinates Type A red cells at approx. 20 µg Lectin per ml of 2% red cells.</td>
<td>15 mg 13.30</td>
</tr>
<tr>
<td>From Wheat Germ</td>
<td>5 mg 21.29</td>
<td>Agglutinates Type A red cells at approx. 20 µg Lectin per ml of 2% red cells.</td>
<td>From Soybean, Crude</td>
<td>2 mg 6.12</td>
</tr>
<tr>
<td>L 1005</td>
<td>2 mg 11.97</td>
<td>Agglutinates Type A red cells at approx. 20 µg Lectin per ml of 2% red cells.</td>
<td>Major affinity: N-Acetylgalactosamine residues.</td>
<td>5 mg 11.97</td>
</tr>
</tbody>
</table>

12/76

ORDER DIRECT

TELEPHONE COLLECT

from ANYWHERE in Great Britain or Europe, 01-549-3171
(English Language Only)

Night and Holidays
N. A. Virgo 01942-0883

Most orders will be shipped within hours
CABLE SIGNALOND, Kingston-upon-Thames

It's a Pleasure Doing Business With Sigma!

SIGMA LONDON CHEMICAL COMPANY LTD.
Norbiton Station Yard, Kingston-upon-Thames, Surrey, KT2 7BH, England

MANUFACTURERS OF THE FINEST BIOCHEMICALS, AVAILABLE

Home office:
SIGMA Chemical Co., P.O. Box 14508, St. Louis, Missouri, 63178 U.S.A.
Telephone: 314-771-5750 (Reverse Charges)

Also distributed through:
SIGMA Chemie GmbH MÜNCHEN + D-8014 Neu-Ulm, Isarstrasse 14, W. Germany
Telephone: 089/60 70 03 (Reverse Charges)
NATO WORKSHOP ON ECOTOXICOLOGY

A NATO sponsored Workshop on the Ecotoxicology of Persistent Chemicals will be held at the University of Surrey from 11th July–5th August 1977.

The Workshop will include lectures, seminars, practical tuition and visits to relevant research establishments in the United Kingdom and attendance at an International Symposium on Environmental Toxicology to be held at the University of Surrey from 25th–30th July.

Participation is limited to fifty and awards are available to cover fees and residential expenses for the four-week period.

Applications are invited from persons wishing to participate. For further details please write to the following address:

Dr. J. A. R. Genge
Department of Biochemistry
University of Surrey,
Guildford, GU2 5XH,
Surrey, England, U.K.

NEW

HOT tritiated amino-acids

L-[2,3,4,5,6-3H] proline TRK.534
80-110Ci/mmol

L-[2,3,5,6-3H] tyrosine TRK.530
70-100Ci/mmol

L-[4,5-3H] leucine TRK.510
>100Ci/mmol

L-[2,4,6-3H] phenylalanine TRK.535
60-80Ci/mmol

L-[4,5-3H] lysine TRK.520
60-80Ci/mmol

HOT amino-acid mixture

A mixture of the above five 3H-amino-acids in equal quantities by activity.

TRK.550

Please enquire for further details.

The Radiochemical Centre
Amersham

The Radiochemical Centre Limited, Amersham, England.
Tel. Little Chalfont (024 04) 4444.

In the Americas: Amersham/Searle Corp, Illinois 60005.
Tel. 312-593-6300.

In W. Germany: Amersham Buchler GmbH & Co, KG,
Braunschweig. Tel. 05307-4693-97.
THE BIOCHEMICAL SOCIETY
SPECIAL PUBLICATIONS SERIES

No. 1 BIOCHEMISTRY AND MENTAL ILLNESS

Edited by L. L. IVERSEN and S. P. R. ROSE

1973 251 pp. £4.50 ($12.00)

No. 2 BIOCHEMISTS IN INDUSTRY

Edited by K. W. FULLER

1973 58 pp. £1.25 (U.S. $3.50)

No. 3 THE METABOLISM AND FUNCTION OF VITAMIN D

Edited by D. R. FRASER

1974 114 pp. £4.00 ($10.50)

No. 4 MEMBRANE ADENOSINE TRIPHOSPHATASES AND TRANSPORT PROCESSES

Edited by J. R. BRONK

1974 197 pp. £5.00 ($12.50)

Available from your bookseller or agent, or direct from

THE BIOCHEMICAL SOCIETY (PUBLICATIONS)
P.O. Box 32, Commerce Way,
Colchester CO2 8HP, Essex

Leaflets giving details of contents of the above publications are available on request
As biochemists have become more interested in the pathways of metabolism and mechanisms of control in a wider range of living systems, it has become apparent that, although there are many features in common to organisms inhabiting different environments, a variety of adaptations or refinements has been necessary so as to enable particular species to perform efficiently under the widely differing and often rapidly changing conditions to which they are exposed. Some of the more fully documented examples of these adaptations, including modifications in enzyme structure, function and activity, alteration in membrane lipids and performance and the substitution of one class of carrier molecule by another, are discussed in this volume.

List of contents and authors:

Chairman's Introduction by C. J. Duncan.
Design of Metabolic and Enzymic Machinery to Fit Lifestyle and Environment by P. W. Hochachka.
Temperature: A 'Shaping Force' in Protein Evolution by G. N. Somero and P. S. Low.
Temperature Adaptation in Fish by M. W. Smith.
Substrate Cycles in Metabolic Regulation and in Heat Generation by E. A. Newsholme and B. Crabtree.
Biochemical Adaptations for Flight in the Insect by B. Sacktor.
Facultative Anaerobiosis in Molluscs by A. de Zwaan, J. H. F. M. Kluytmans and D. I. Zande.
Metabolic Consequences of Submersion Asphyxia in Mammals and Birds by A. S. Blix.
Adaptations with Respect to Salinity by E. Schoffeniels.
Adaptations of Enzymes for Regulation of Catalytic Function by D. E. Atkinson.
# The Biochemical Journal

## Cumulative Indices

### Save Research Time

Busy researchers and authors find that these multi-volume indices are invaluable. Where time is money the cost is recovered quickly. Produced as a service to subscribers and priced accordingly.

<table>
<thead>
<tr>
<th>Volumes</th>
<th>£</th>
<th>p</th>
<th>U.S.$</th>
</tr>
</thead>
<tbody>
<tr>
<td>21–30</td>
<td>0.75</td>
<td>2.50</td>
<td></td>
</tr>
<tr>
<td>31–40</td>
<td>2.00</td>
<td>5.50</td>
<td></td>
</tr>
<tr>
<td>41–65</td>
<td>2.75</td>
<td>7.50</td>
<td></td>
</tr>
<tr>
<td>66–90</td>
<td>3.25</td>
<td>9.00</td>
<td></td>
</tr>
<tr>
<td>91–115</td>
<td>5.25</td>
<td>13.00</td>
<td></td>
</tr>
<tr>
<td>116–130</td>
<td>5.50</td>
<td>15.00</td>
<td></td>
</tr>
</tbody>
</table>

*All prices include postage (by surface mail to overseas)*

Available from:

**The Biochemical Society**

(Publications)

PO BOX 32 Commerce Way
Whitehall Industrial Estate
Colchester CO2 8HP Essex
This may be the only cross-word you'll ever exchange with us

and it could be worth £10 to you

CONDITIONS OF ENTRY
Closing date for all entries 31st March 1977.
The first 50 correct entries will receive free goods or discount to the value of £10 if accompanied by an official order to the value of £25 or over.
Please state together with your name and order no., whole of our products to the value of £10 you wish to receive.
Entries are restricted to the U.K. only, one entry per person.
The correct solutions and the winning entries names will be published in the next issue of Biochemistry Service.
Every entry will be personally acknowledged.
This competition is open to the staff of the Boehringer Corporation or their relatives.

Please address all enquiries and entries to:
The Boehringer Corporation (London) Ltd.,
Bell Lane, Lewes, East Sussex BN7 1LG.
Telephone: Lewes (07916) 71611

If in the Republic of Ireland please contact our Dublin Office at:
Valentine House, Temple Road, Blackrock, Co. Dublin.
Telephone: Dublin 882613/882726

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td>29</td>
<td>30</td>
<td>31</td>
<td>32</td>
<td>33</td>
<td>34</td>
<td>35</td>
</tr>
<tr>
<td>36</td>
<td>37</td>
<td>38</td>
<td>39</td>
<td>40</td>
<td>41</td>
<td></td>
</tr>
</tbody>
</table>

ACROSS
1. Firm, well-dressed regency campanologist. (10)
5. Stir briskly for laboratory use. (4)
8. Me, Ann and him get together in Germany. (8)
10. Amend the turn of the tide. (4)
12. An important 41. (4)
16. Pertaining to our nearest star. (7)
18. Way out in front of the press. (7)
19. 29 loses its head as well. (2)
20. Fish playing to form. (4)
22. Time when the continent was taken by storm. (1, 3)
24. In future can a thousand although broken produce the goods. (11)
26. A well-known heavyweight. (4)
26, 28, 30. Only acceptable to the Tate. (4, 2, 7)
28. See 26 Across.
30. See 26 Across.

31. In approx 1 month it will still give the same meaning. (7)
34. Stains, but perhaps overdoes it. (4)
36. Girl to see be with. (4)
37. Resolving her cares may result in discovery. (7)
40. Scottish Oelt in a strong wind. (4)
41. Greek indicators of biological change. (1, 9)

DOWN
1. Organic Control Device. (5)
2. Used in the construction of pelmets? (3)
3. Domestic appliance in the reaction, nothing in it. (3)
4. Gives out in difficult times. (5)
6. Palindromic tracking apparatus. (5)
7. Involving the first day will do the opposite to the recipient. (7)
9. Does Hitchcock purposely set out to do this to his audience. (7)

11. Mohammadan in a penal institute. (3)
14. Greek reference to a very personal waterproof covering. (5)
15. Short skidiver do an unknown quantity contrary to popular belief. (7)
17. Self made man of the future. (7)
21. 20 Grains give a feeling of moral doubt. (7)
23. Only divine status can put a tidy direction in order. (5)
25. Bird, injure slightly an upright friend. (7)
27. Result of lixiviation of vegetable ashes. (3)
29. Scandinavian loses his tail. (3)
32. Litharge = 25 across + 32 down. (5)
33. One of the PUTF A's found in soft margarine. (5)
35. Sounds like many international discussions to reduce fire power. (5)
38. Obviously lives in B. (3)
39. Meat in Surrey. (3)

Please address all enquiries and entries to:
The Boehringer Corporation (London) Ltd.,
Bell Lane, Lewes, East Sussex BN7 1LG.
Telephone: Lewes (07916) 71611

If in the Republic of Ireland please contact our Dublin Office at:
Valentine House, Temple Road, Blackrock, Co. Dublin.
Telephone: Dublin 882613/882726

Printed in Great Britain at The Spottiswoode Ballantyne Press
by William Clowes & Sons Limited, London, Colchester and Boodles