Letters to the Editor

Alternative Solutions for the Operation of the Coulter Model S

The cost of operating the Coulter model S as reported by Barnard, Carter, Crossland-Taylor, and Stewart (1969) is approximately 5 (2±p) cents (Australian) per test for reagents purchased from the manufacturer. In countries where importation of these solutions is necessary the operating cost is approximately 9 cents (4±p) per test. This compares unfavourably with the cost of operating systems such as the semi-automated system described by Davis and Kelly (1969).

The Coulter model S requires two solutions for operation: a buffered sodium chloride solution and a lysing and haemoglobin conversion solution. The formulae for these solutions have not been published to date. The high cost of the commercial products has prompted formulation of alternative solutions. Excellent results have been obtained with the substitute buffered salt solution made up as follows:

Sodium chloride ....... 8·3 g
Disodium hydrogen phosphate ... 2·0 g
Potassium dihydrogen phosphate ... 0·45 g
Potassium chloride ....... 0·16 g
Sodium azide ....... 1·0 g
Glucose ....... 0·25 g
Water ....... to 1 litre

To facilitate preparation of large volumes of this solution, a dry mix is prepared. Solutions are made up in 25 litre plastic containers and are membrane filtered (millipore filter, pore size 0·45μ). Using the substitute buffered salt solution no variation in results was obtained when compared with the commercial product.

Table I

<table>
<thead>
<tr>
<th>Loop No.</th>
<th>Absorption of L-methionine (200 mol/l) (μ mol methionine/cm²/10 min)</th>
<th>Absorption of L-methionyl-L-methionine (100 mol/l) (μ mol methionine/cm²/10 min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1·36 ± 0·40*</td>
<td>2·98 ± 0·18</td>
</tr>
<tr>
<td>2</td>
<td>1·47 ± 0·11</td>
<td>4·37 ± 0·28</td>
</tr>
<tr>
<td>3</td>
<td>1·71 ± 0·25</td>
<td>4·32 ± 0·41</td>
</tr>
<tr>
<td>4</td>
<td>2·01 ± 0·19</td>
<td>3·85 ± 0·33</td>
</tr>
<tr>
<td>5</td>
<td>2·41 ± 0·30</td>
<td>3·52 ± 0·43</td>
</tr>
<tr>
<td>6</td>
<td>1·86 ± 0·10</td>
<td>2·19 ± 0·09</td>
</tr>
</tbody>
</table>

*Mean ± SE n = 6

Table II

<table>
<thead>
<tr>
<th></th>
<th>Absorption of L-methionine and L-methionyl-L-methionine from different sites in the small intestine of the rat</th>
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Letters to the Editor

Sites of Maximal Intestinal Absorptive Capacity for Amino Acids and Peptides: Evidence for an Independent Peptide Uptake System or Systems

In this letter we wish to make a brief report of an investigation of the sites of maximal absorptive capacity for amino acids and peptides, since the results throw additional light on the problem of intestinal peptide uptake and its role in protein absorption (Matthews, 1971).

Absorption of L-methionine (200 mol/l) and the equivalent L-methionyl-L-

methionine (100 mol/l) was measured by disappearance from the lumen of tied loops of small intestine in anaesthetized rats over a period of 1 min (Matthews, Lis, Chen, and Crampton, 1969). Six loops were made in each animal at regular intervals down the small intestine from a site close to the pylorus (loop 1) to one close to the ileo-caecal valve (loop 6).

The results in the Table show that the sites of maximal absorptive capacity for the amino acid and the peptide are completely different. That for the amino acid is in the distal small intestine, whereas that for the peptide is in the proximal small intestine. In the jejunum (loop 2) absorption from the peptide is three times as great as from the equivalent amino acid, whereas in the distal ileum both peptide and amino acid are absorbed to approximately the same extent. A similar pattern has been found using a trypic hydrolysate of casein (consisting mainly of small peptides) and a mixture of amino acids of equivalent amino acid content (Crampton, Lis, and Matthews, 1971).

References


Alternative solutions for the operation of Coulter model S.

D J Nicol and R E Davis

*J Clin Pathol* 1971 24: 882
doi: 10.1136/jcp.24.9.882-a

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