with either substrate, but the observed activity was 55.7% lower with L-alanine-4-nitroanilide, in contrast with what happens in sera of males and nonpregnant women. Evidently, L-alanine-4-nitroanilide behaves like LCHA in this regard, probably reflecting the relative resistance of these substrates to the action of cystyl-aminopeptidase and perhaps other a-aminocacyl peptide hydrodases whose activity may be increased in the sera during pregnancy. We thus find this method to be fast, kinetic, and readily amenable to total automation, and we believe it has practical and theoretical advantages over those in which LCHA is used as substrate.

References

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Concentrations of Trypsin, Elastase and Carbohydrate Antigen CA 19-9 in Serum of Cystic Fibrosis Patients

To the Editor:

A letter from Duffy et al. (1) has prompted us to report our findings. We measured concentrations of trypsin (EC 3.4.11.4), elastase (EC 3.4.21.11), and CA 19-9 in serum from nine patients with confirmed cases of cystic fibrosis (CF) and from 20 healthy persons as controls. CA 19-9 is a monoclonal antibody tumor marker characterized as sialylated lacto-n-fucopentose II. One unit corresponds to approximately 0.8 ng of highly purified, mucin-like glycoprotein expressing the CA 19-9 determinant.

The mass concentrations of trypsin in serum of CF patients ranged from 22 to 1200 μg/L, six of the nine having concentrations exceeding the upper limit for the control group (400 μg/L). The elastase mass concentration in ser-

Table 1. Concentrations of Trypsin, Elastase, and CA 19-9 in Serum of Cystic Fibrosis Patients

<table>
<thead>
<tr>
<th>Patient's age (months) and sex</th>
<th>Trypsin</th>
<th>Elastase</th>
<th>CA 19-9, kio-units/L</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. 9</td>
<td>10 50</td>
<td>12.50</td>
<td>5</td>
</tr>
<tr>
<td>6. 9</td>
<td>85 0</td>
<td>21.00</td>
<td>760</td>
</tr>
<tr>
<td>2. 9</td>
<td>95 5</td>
<td>17.50</td>
<td>5</td>
</tr>
<tr>
<td>4. 9</td>
<td>12 00</td>
<td>6.00</td>
<td>420</td>
</tr>
<tr>
<td>1.5. 9</td>
<td>74 7</td>
<td>1.80</td>
<td>30</td>
</tr>
<tr>
<td>4. 9</td>
<td>37 0</td>
<td>5.30</td>
<td>783</td>
</tr>
<tr>
<td>2. 9</td>
<td>32 2</td>
<td>1.70</td>
<td>120</td>
</tr>
<tr>
<td>6. 9</td>
<td>54 3</td>
<td>1.85</td>
<td>37</td>
</tr>
<tr>
<td>132. 9</td>
<td>42 2</td>
<td>1.00</td>
<td>450</td>
</tr>
<tr>
<td>Reference ranges</td>
<td>140-</td>
<td>0.78-</td>
<td>up to 30</td>
</tr>
</tbody>
</table>

Fig. 1. The duct-lining cells staining positive (shaded margins) for carbohydrate antigen CA 19-9 in chronic pancreatitis Immunohistochemical stain, × 550 (original magnification)

the pancreas may indeed be the source of the serum CA 19-9 concentration in CF, a chronic progressive disease.

References

Lack of Effect of Isotretinoin on Thyroid-Function Tests

To the Editor:

With the increasing popularity of isotretinoin (Accutane; Hoffmann-La Roche) for the treatment of acne vulgaris, there is much interest in the effect of this retinoid on results of laboratory tests. There has been only one report of the effect on thyroid-function indices. Marsden et al. (1) studied seven patients who were receiving 1 mg/k per day dosage of isotretinoin for 12 weeks and found a significant decrease in total thyroxin (TT4), free thyroxin index (FTI), and total triiodothyronine (TT3). They found no significant change in serum thyrotropin (TSH) in the basal state and after stimulation with thyrotropin.

We have studied thyroid function in 24 healthy male subjects who received 1 mg of isotretinoin per kilogram of body weight per day for 16 weeks for the treatment of acne vulgaris. They received no other medication and were instructed to abstain from ethanol and

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