On the Chemical Properties of the Z-Granules

I. Ribonuclease Test

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The existence of a new element, Z-Granule, in the granulocyte series which is demonstrable by a new staining method has been mentioned already by us.1) A further evidence of the argument could be offered by ribonuclease test in a manner below.

The imprints of rabbit bone marrow are fixed in methanol for 3 minutes or in susa solution for 1 minute, then washed in the water. After incubation in buffered ribonuclease solution for 1–2 hours at 30°C, the specimens are rinsed with distilled water and stained with thionin-sodium acetate solution.1) The enzyme solution is prepared by dissolving 5 mg. of ribonuclease in 10 cc of sodium phosphate-citric acid buffer (pH 5.6). The basophilia in the cells which represents ribonucleic acid is removed by the enzyme, while the Z-granules remains almost intact and is stained metachromatically with thionin, as when processed without prior enzymic digestion.

On the other hand, the application of Lugor and sodium thiosulfate following susa fixation enfeebled remarkably the stainability of the granules. Further to add, the granules are demonstrated under certain conditions in a colour similar to the azur granules by May-Giemsa stain.

The results obtained are illustrated in Table I.

<table>
<thead>
<tr>
<th>Stainability of Z-granules</th>
<th>Fixed w. methanol</th>
<th>Fixed w. Susa</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>no treatment w.</td>
<td>no treatment w.</td>
</tr>
<tr>
<td></td>
<td>Lugor and sodium</td>
<td>Lugor and sodium</td>
</tr>
<tr>
<td></td>
<td>thiosulfate</td>
<td>thiosulfate</td>
</tr>
<tr>
<td>digested w. ribonuclease</td>
<td>not digested</td>
<td>not digested</td>
</tr>
<tr>
<td>w. thionin-sodium acetate</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>w. May-Giemsa</td>
<td>−</td>
<td>+</td>
</tr>
</tbody>
</table>

References