SalivaPrint – A tool for patient stratification in oral health

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Introduction
It is known that saliva reflects many systemic and oral pathologies (Rosa et al 2012). At SalivaTec we are interested in using this fluid in diagnostics and patient stratification and have been analyzing saliva from several individuals characterizes as to their oral and systemic health.

Goals: Demonstrate that total salivary protein profile determined by capillary electrophoresis (SalivaPrint) may be used to direct the search for biomarkers.

Methods
SalivaPrints were obtained for 26 individuals with periodontal disease. These total salivary protein profiles were obtained through automated microfluidic Experion electrophoresis system (Bio-Rad, PT). Individuals included participate in a larger study relating oral health with different systemic factors and are volunteers from a group of seniors participating in and exercise program of the Município de Viseu. Their profiles were compared with SalivaPrints from healthy individuals and the most representative features for separation of the two groups were selected.

Results

Table I. Proteins and respective molecular weights in SalivaPrint (Rosa et al 2016)

<table>
<thead>
<tr>
<th>Entry</th>
<th>Protein names</th>
<th>Molecular Weight (kDa)</th>
<th>SalivaTecDB condition identification</th>
<th>Molecular Weight Range (kDa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P31947</td>
<td>14-3-3 protein sigma</td>
<td>28</td>
<td>Periodontitis/Healthy</td>
<td>28 - 29</td>
</tr>
<tr>
<td>P06870</td>
<td>Kallikrein-1</td>
<td>29</td>
<td>Healthy</td>
<td></td>
</tr>
<tr>
<td>P30740</td>
<td>Leukocyte elastase inhibitor</td>
<td>43</td>
<td>Healthy</td>
<td>42 - 43</td>
</tr>
<tr>
<td>Q08186</td>
<td>Protein-glutamin gamma-glutamyltransferase E</td>
<td>77</td>
<td>Healthy</td>
<td>77 - 78</td>
</tr>
<tr>
<td>P02788</td>
<td>Lactotransferrin</td>
<td>78</td>
<td>Periodontitis/Healthy</td>
<td></td>
</tr>
</tbody>
</table>

Some of these proteins are functionally related to processes deregulated in oral and systemic disease.

Proteins such as P31947 (14-3-3 protein sigma) are related to the mTor pathway involved in glucose resistance, a condition related to obesity and diabetes. This is consistent with a high prevalence of these pathologies in the individuals with periodontal disease included.

Conclusion
SalivaPrint can provide information on which molecules should be used to distinguish between individuals with oral health and periodontal disease.

Although the diagnostics of periodontal disease through salivary markers is an interesting approach, explored by our laboratory, the results presented here indicate that metabolic deregulations such as diabetes and obesity have to be considered if the quantification of salivary markers is to be used for diagnostics.

Referências bibliográficas