Genomics and Epidemiology for Gastric Cancer (GE4GAC)
Genomics and Epidemiology for Gastric Adenocarcinomas (GE4GAC)

- EPIDEMIOLOGY - Subject information collected through 3 main questionnaires:
  - Patient personal information: 49 variables;
  - Lifestyle: 835 variables;
  - Nutritional habits: 640 variables.
Molecular Ancestry of all GC cases

Collaboration with Prof. Eran Elhaik (Sheffield Univ, UK)
# Tumor mutation profile of gastric adenocarcinomas (n=112)

<table>
<thead>
<tr>
<th>Gender</th>
<th>M</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>71 (63)</td>
<td>41 (37)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age (y)</th>
<th>Mediana</th>
<th>Min.-Máx.</th>
</tr>
</thead>
<tbody>
<tr>
<td>64</td>
<td>(37-91)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tumor Location</th>
<th>EGJ</th>
<th>Body</th>
<th>Antrum</th>
<th>Linitis</th>
<th>Stump</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 (11.6)</td>
<td>56 (50)</td>
<td>34 (30.4)</td>
<td>7 (6.2)</td>
<td>2 (1.8)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Histology</th>
<th>Adenocarcinoma NOS</th>
<th>Signet ring</th>
<th>Papillary</th>
<th>Tubular</th>
<th>Poorly differentiated</th>
</tr>
</thead>
<tbody>
<tr>
<td>59 (52.7)</td>
<td>30 (26.8)</td>
<td>1 (0.9)</td>
<td>12 (10.7)</td>
<td>10 (8.9)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lauren</th>
<th>Intestinal</th>
<th>Diffuse</th>
<th>Mixed</th>
<th>Not classifiable</th>
</tr>
</thead>
<tbody>
<tr>
<td>46 (41.1)</td>
<td>53 (47.3)</td>
<td>3 (2.7)</td>
<td>10 (8.9)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cirurgia do primário</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>111 (99.1)</td>
<td>1 (0.9)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Staging (AJCC 7ª Ed.)</th>
<th>IA</th>
<th>IB</th>
<th>IIA</th>
<th>IIB</th>
<th>IIIA</th>
<th>IIIB</th>
<th>IIIC</th>
<th>IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>17 (15.2)</td>
<td>8 (7.1)</td>
<td>12 (10.7)</td>
<td>11 (9.8)</td>
<td>12 (10.7)</td>
<td>17 (15.2)</td>
<td>19 (17)</td>
<td>16 (14.3)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EBV</th>
<th>Negative</th>
<th>Positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>107 (95.5)</td>
<td>5 (4.5)</td>
<td></td>
</tr>
</tbody>
</table>

---

Helano Freitas  
(PhD candidate)
Gastric fluids and the analysis of the stomach microbiota

At diagnosis, the microbiome diversity of GC patients is significantly reduced.

Total of 252 samples sequenced: GW, BX (cases and controls)

p-value: 5.0143e-06; [Mann-Whitney] statistic: 1562
Gastric cancer - Sample collection

**Diagnosis**
- Biopsy (BX)
- Gastric wash (GW)
- Plasma (PL)
- Circulating tumor cell (CTC)
- Saliva

**End neoadjuvant chemo or disease reevaluation (metastatic)**
- GW
- PL
- CTC

**Post surgery**
- GW
- PL
- Surgical resection

**Pre adjuvancy or disease reevaluation**
- GW
- PL
- CTC

**3 months**
- GW
- PL

**6 months**
- GW
- PL
Why similar tumors have different responses to neoadjuvant chemotherapy?

- Ethnicity (admixture)
- Cultural habits (diet, tobacco, alcohol)
- Genomic profile
- Immune profile
- Somatic mutations
- Microbiota
- TREATMENT RESPONSE

- Genomic profile
- Immune profile
- Somatic mutations
- Microbiota
- TREATMENT RESPONSE
We need an organized, comprehensive and integrated database

Data integration allowing convergence of approaches: histology (*in silico pathology*), patient & tumor data, molecular ancestry, metabolome, mutation analysis & microbiome.

Data Science team at A.C.Camargo
Acknowledgements