São Paulo MetaGenomics Plan

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University of São Paulo, Brazil
on behalf of the SP Group

MetaSub Meeting in New York
June 20, 2015
Disclosures

- No affiliation with Metro.
- I am a professor of a public university in Brazil.
- I am a cancer researcher and study epigenetics in cancer.
São Paulo, Brazil

Nasa light show
About São Paulo - Wiki notes

Largest in SA, 2nd largest in the Americas and 10th largest city in the world

<table>
<thead>
<tr>
<th>Rank</th>
<th>Metropolitan</th>
<th>Country</th>
<th>Official population</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tokyo</td>
<td>Japan</td>
<td>36,923,000</td>
<td>2010</td>
</tr>
<tr>
<td>2</td>
<td>Seoul</td>
<td>South Korea</td>
<td>25,620,000</td>
<td>2015</td>
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<tr>
<td>3</td>
<td>Shanghai</td>
<td>China</td>
<td>24,750,000</td>
<td>2015</td>
</tr>
<tr>
<td>4</td>
<td>Guangzhou</td>
<td>China</td>
<td>23,900,000</td>
<td>2014</td>
</tr>
<tr>
<td>5</td>
<td>Karachi</td>
<td>Pakistan</td>
<td>23,500,000</td>
<td>2013</td>
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<tr>
<td>6</td>
<td>Delhi</td>
<td>India</td>
<td>21,753,486</td>
<td>2011</td>
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<td>7</td>
<td>Mexico City</td>
<td>Mexico</td>
<td>21,178,955</td>
<td>2014</td>
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<tr>
<td>8</td>
<td>Beijing</td>
<td>China</td>
<td>21,148,000</td>
<td>2013</td>
</tr>
<tr>
<td>9</td>
<td>Lagos</td>
<td>Nigeria</td>
<td>21,000,000</td>
<td>2014</td>
</tr>
<tr>
<td>10</td>
<td>São Paulo</td>
<td>Brazil</td>
<td>20,935,204</td>
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<tr>
<td>11</td>
<td>Mumbai</td>
<td>India</td>
<td>20,748,395</td>
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<td>12</td>
<td>New York</td>
<td>United States</td>
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<td>13</td>
<td>Moscow</td>
<td>Russia</td>
<td>19,428,664</td>
<td>2015</td>
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<tr>
<td>14</td>
<td>Osaka</td>
<td>Japan</td>
<td>19,342,000</td>
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<tr>
<td>15</td>
<td>Cairo</td>
<td>Egypt</td>
<td>16,292,269</td>
<td>2006</td>
</tr>
</tbody>
</table>
Metro São Paulo - Wiki notes

- 2nd largest Metro in SA and 3rd largest in Latin America.
- 67 Stations - across 5 lines
- 75 km in total length
- Estimated 1.1 billion riders per annum
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video: http://tinyurl.com/metasub-sp
Google Flu Trends since 2002

https://www.google.org/flutrends/data.txt
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H1N1 Swine Flu Outbreak, June 2009

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MetaSub Cities: Australia, Brazil, France, Japan, Mexico, Spain, USA

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Team MetaSub São Paulo

- We have 10 volunteer students (undergrad to grad students)
- Live in different areas of SP
- Work in different areas of SP

1) Danilo Micani - Biomedical Science - Master's student - UNIFESP
2) Jéssica Golçalves - Biomedical Science - UNIFESP
3) Flávia Rius - Biomedical Science - Doctoral student - UNIFESP
4) Mateus Trovão de Queiroz - Biomedical Science - Master's student - UNIFESP
5) Aline Afonso Keusseyan - Biomedical Science - Master's student - InCor - USP
6) Carolina Eichemberger Rius - Law student - Mackenzie
7) Talita Pereira da Silva - No graduation
8) Manoela Tiago dos Santos - Doctoral student - USP
9) Fabiana M Meliso - Doctoral student - UNIFESP

Coordinators: Houtan Noushmehr & Emmanuel Dias Neto
Epigenomics Group @ USP

Photo taken 2013.
Experience with consortia

- Since 2009, I have been a member of the Cancer Genome Atlas (TCGA).
- USP has contributed 50+ cases to TCGA.
- Over 10,000 tumor samples have been processed, across 33 tumors.
- A major concern has always been batch effect (biological and technical effects).

Summary

- SP - is large and the transit system is among the largest in LA.
- Paulistanos are diverse (genetically)
- Southern Hemisphere cities offer opportunities to understand the metagenomic data (e.g. flu trends)
- Student volunteers are ready to collect data

Topics for discussion:
- How to be transparent
- How to normalize data collection across diverse cities
- How to centralize data generation
- How are we going to organize our analytical teams?
Obrigado

See you in Brazil for the next MetaSub Meeting - 2017?