EXPLOITATION RESULTS OF MIS IMUNOLOG

I. Penjurov, P. Mihova, J. Vinarova

Department of biomedical sciences, NBU, Bulgaria

penjurov@nbu.bg, pmihova@nbu.bg, jvinarova@nbu.bg
Lupus is a **chronic, autoimmune, connective tissue disease** which causes inflammation in various parts of the body. The body’s immune system, which normally protects the body against foreign invaders such as germs, viruses, flu and bacteria, for some reason, loses the ability to tell the difference between these foreign substances and the body’s own cells and tissues.

The immune system becomes overactive, mistakenly turns against itself (**auto** = **self**) and attacks the person’s own body, causing inflammation and possible **long-term or chronic** damage to various parts of the body.

Lupus is known as a **connective tissue** or **rheumatic disease** which is a group of disorders that cause aches and pains in the connective tissues - joints, muscles and bones, however, lupus can also affect many other parts of the body, including the skin, kidneys, heart, lungs, blood vessels and brain.
<table>
<thead>
<tr>
<th>Country/Region</th>
<th>Extrapolated Prevalence</th>
<th>Population Estimated Used</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lupus in North America (Extrapolated Statistics)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td>1,511,461</td>
<td>293,655,405^1</td>
</tr>
<tr>
<td>Canada</td>
<td>167,319</td>
<td>32,507,674^2</td>
</tr>
<tr>
<td>Mexico</td>
<td>540,233</td>
<td>104,969,504^2</td>
</tr>
<tr>
<td><strong>Lupus in Central America (Extrapolated Statistics)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belize</td>
<td>1,404</td>
<td>272,945^2</td>
</tr>
<tr>
<td>Guatemala</td>
<td>73,503</td>
<td>14,280,596^2</td>
</tr>
<tr>
<td>Nicaragua</td>
<td>27,586</td>
<td>5,359,750^2</td>
</tr>
<tr>
<td><strong>Lupus in Caribbean (Extrapolated Statistics)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Puerto Rico</td>
<td>20,063</td>
<td>3,697,990^2</td>
</tr>
<tr>
<td><strong>Lupus in South America (Extrapolated Statistics)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brazil</td>
<td>647,579</td>
<td>184,101,109^2</td>
</tr>
<tr>
<td>Chile</td>
<td>81,446</td>
<td>15,823,957^2</td>
</tr>
<tr>
<td>Colombia</td>
<td>217,776</td>
<td>42,310,775^2</td>
</tr>
<tr>
<td>Paraguay</td>
<td>31,887</td>
<td>6,191,386^2</td>
</tr>
<tr>
<td>Peru</td>
<td>141,772</td>
<td>27,544,305^2</td>
</tr>
<tr>
<td>Venezuela</td>
<td>128,760</td>
<td>25,017,387^2</td>
</tr>
<tr>
<td><strong>Lupus in Northern Europe (Extrapolated Statistics)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>27,883</td>
<td>5,413,392^2</td>
</tr>
<tr>
<td>Finland</td>
<td>26,839</td>
<td>5,214,512^2</td>
</tr>
<tr>
<td>Iceland</td>
<td>1,513</td>
<td>293,986^2</td>
</tr>
<tr>
<td>Sweden</td>
<td>46,253</td>
<td>8,986,400^2</td>
</tr>
<tr>
<td><strong>Lupus in Western Europe (Extrapolated Statistics)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Britain (United Kingdom)</td>
<td>310,216</td>
<td>60,270,708 for UK^3</td>
</tr>
<tr>
<td>Belgium</td>
<td>53,263</td>
<td>10,348,276^2</td>
</tr>
<tr>
<td>France</td>
<td>311,006</td>
<td>60,424,213^2</td>
</tr>
<tr>
<td>Ireland</td>
<td>20,431</td>
<td>3,868,538^2</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>2,381</td>
<td>462,690^2</td>
</tr>
<tr>
<td>Monaco</td>
<td>168</td>
<td>32,270^2</td>
</tr>
<tr>
<td>Netherlands (Holland)</td>
<td>83,990</td>
<td>16,318,199^3</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>310,216</td>
<td>60,270,708^2</td>
</tr>
<tr>
<td><strong>Lupus in Central Europe (Extrapolated Statistics)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Austria</td>
<td>42,075</td>
<td>8,174,752^2</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>6,414</td>
<td>1,024,618^2</td>
</tr>
<tr>
<td>Germany</td>
<td>424,244</td>
<td>82,424,609^2</td>
</tr>
<tr>
<td>Hungary</td>
<td>51,637</td>
<td>10,032,376^2</td>
</tr>
<tr>
<td>Liechtenstein</td>
<td>172</td>
<td>33,436^2</td>
</tr>
<tr>
<td>Poland</td>
<td>198,812</td>
<td>36,826,324^2</td>
</tr>
<tr>
<td>Slovakia</td>
<td>27,915</td>
<td>5,423,557^2</td>
</tr>
<tr>
<td>Slovenia</td>
<td>10,353</td>
<td>2,011,473^2</td>
</tr>
<tr>
<td>Switzerland</td>
<td>38,350</td>
<td>7,450,887^2</td>
</tr>
<tr>
<td><strong>Lupus in Eastern Europe (Extrapolated Statistics)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belarus</td>
<td>53,088</td>
<td>10,310,520^2</td>
</tr>
<tr>
<td>Estonia</td>
<td>6,905</td>
<td>1,341,684^2</td>
</tr>
<tr>
<td>Latvia</td>
<td>11,870</td>
<td>2,306,436^2</td>
</tr>
<tr>
<td>Lithuania</td>
<td>10,570</td>
<td>3,067,899^2</td>
</tr>
<tr>
<td>Russia</td>
<td>741,042</td>
<td>143,974,059^2</td>
</tr>
<tr>
<td>Ukraine</td>
<td>245,679</td>
<td>47,732,079^2</td>
</tr>
<tr>
<td><strong>Lupus in the Southwestern Europe (Extrapolated Statistics)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Azerbaijan</td>
<td>40,499</td>
<td>7,060,396^2</td>
</tr>
<tr>
<td>Georgia</td>
<td>24,159</td>
<td>4,693,832^2</td>
</tr>
<tr>
<td>Portugal</td>
<td>54,168</td>
<td>10,524,145^2</td>
</tr>
<tr>
<td>Spain</td>
<td>207,327</td>
<td>40,260,780^2</td>
</tr>
<tr>
<td><strong>Lupus in Southern Europe (Extrapolated Statistics)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greece</td>
<td>54,803</td>
<td>10,647,529^2</td>
</tr>
<tr>
<td>Italy</td>
<td>298,625</td>
<td>56,057,477^2</td>
</tr>
<tr>
<td><strong>Bosnia and Herzegovina</strong></td>
<td>2,087</td>
<td>401,503^2</td>
</tr>
<tr>
<td><strong>Bulgaria</strong></td>
<td>38,035</td>
<td>7,517,973^2</td>
</tr>
<tr>
<td><strong>Croatia</strong></td>
<td>23,145</td>
<td>4,496,889^2</td>
</tr>
<tr>
<td><strong>Macedonia</strong></td>
<td>10,500</td>
<td>2,040,085^2</td>
</tr>
<tr>
<td>Romania</td>
<td>115,065</td>
<td>22,355,551^2</td>
</tr>
<tr>
<td>Serbia and Montenegro</td>
<td>55,721</td>
<td>10,025,900^2</td>
</tr>
</tbody>
</table>
### Lupus in Northern Asia (Extrapolated Statistics)

<table>
<thead>
<tr>
<th>Country</th>
<th>Lupus Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mongolia</td>
<td>14.161</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>17.945</td>
</tr>
<tr>
<td>Switzerland</td>
<td>36.090</td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>133.635</td>
</tr>
</tbody>
</table>

### Lupus in Central Asia (Extrapolated Statistics)

<table>
<thead>
<tr>
<th>Country</th>
<th>Lupus Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mongolia</td>
<td>14.161</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>15,143.704</td>
</tr>
<tr>
<td>Switzerland</td>
<td>7,011.556</td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>26,410.416</td>
</tr>
</tbody>
</table>

### Lupus in Eastern Asia (Extrapolated Statistics)

<table>
<thead>
<tr>
<th>Country</th>
<th>Lupus Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>6,568,240</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>35,233</td>
</tr>
<tr>
<td>Japan</td>
<td>655,390</td>
</tr>
<tr>
<td>Macau</td>
<td>2,291</td>
</tr>
<tr>
<td>North Korea</td>
<td>116,625</td>
</tr>
<tr>
<td>South Korea</td>
<td>248,262</td>
</tr>
<tr>
<td>Taiwan</td>
<td>117,094</td>
</tr>
</tbody>
</table>

### Lupus in Southwestern Asia (Extrapolated Statistics)

<table>
<thead>
<tr>
<th>Country</th>
<th>Lupus Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turkey</td>
<td>354,601</td>
</tr>
<tr>
<td>Armenia</td>
<td>146.761</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>727,487</td>
</tr>
<tr>
<td>Bhutan</td>
<td>11,249</td>
</tr>
<tr>
<td>India</td>
<td>5,481,981</td>
</tr>
<tr>
<td>Pakistan</td>
<td>819,392</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>102,453</td>
</tr>
</tbody>
</table>

### Lupus in Southeastern Asia (Extrapolated Statistics)

<table>
<thead>
<tr>
<th>Country</th>
<th>Lupus Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Timor</td>
<td>5,246</td>
</tr>
<tr>
<td>Indonesia</td>
<td>1,227,331</td>
</tr>
<tr>
<td>Laos</td>
<td>31,232</td>
</tr>
<tr>
<td>Malaysia</td>
<td>121,071</td>
</tr>
<tr>
<td>Philippines</td>
<td>443,891</td>
</tr>
<tr>
<td>Singapore</td>
<td>22,409</td>
</tr>
<tr>
<td>Thailand</td>
<td>333,866</td>
</tr>
<tr>
<td>Vietnam</td>
<td>425,470</td>
</tr>
</tbody>
</table>

### Lupus in the Middle East (Extrapolated Statistics)

<table>
<thead>
<tr>
<th>Country</th>
<th>Lupus Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gaza strip</td>
<td>6,819</td>
</tr>
<tr>
<td>Iran</td>
<td>347,442</td>
</tr>
<tr>
<td>Iraq</td>
<td>130,605</td>
</tr>
<tr>
<td>Israel</td>
<td>31,906</td>
</tr>
<tr>
<td>Jordan</td>
<td>28,881</td>
</tr>
<tr>
<td>Kuwait</td>
<td>11,619</td>
</tr>
<tr>
<td>Lebanon</td>
<td>19,441</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>132,773</td>
</tr>
<tr>
<td>Syria</td>
<td>92,733</td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td>12,990</td>
</tr>
<tr>
<td>West Bank</td>
<td>11,895</td>
</tr>
<tr>
<td>Yemen</td>
<td>103,069</td>
</tr>
</tbody>
</table>

### Lupus in Northern Africa (Extrapolated Statistics)

<table>
<thead>
<tr>
<th>Country</th>
<th>Lupus Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egypt</td>
<td>391,780</td>
</tr>
<tr>
<td>Libya</td>
<td>26,986</td>
</tr>
<tr>
<td>Sudan</td>
<td>201,497</td>
</tr>
</tbody>
</table>

### Lupus in Western Africa (Extrapolated Statistics)

<table>
<thead>
<tr>
<th>Country</th>
<th>Lupus Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congo Brazzaville</td>
<td>15,431</td>
</tr>
<tr>
<td>Ghana</td>
<td>108,837</td>
</tr>
<tr>
<td>Liberia</td>
<td>17,451</td>
</tr>
<tr>
<td>Niger</td>
<td>56,473</td>
</tr>
<tr>
<td>Nigeria</td>
<td>91,362</td>
</tr>
<tr>
<td>Senegal</td>
<td>56,856</td>
</tr>
<tr>
<td>Sierra Leone</td>
<td>30,284</td>
</tr>
</tbody>
</table>

### Lupus in Central Africa (Extrapolated Statistics)

<table>
<thead>
<tr>
<th>Country</th>
<th>Lupus Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central African Republic</td>
<td>15,262</td>
</tr>
<tr>
<td>Chad</td>
<td>49,095</td>
</tr>
<tr>
<td>Congo Kinshasa</td>
<td>300,161</td>
</tr>
<tr>
<td>Rwanda</td>
<td>42,404</td>
</tr>
</tbody>
</table>
EXTRAPOLATED STATISTICS ONLY! Not based on data sources from individual countries. These statistics are calculated extrapolations of various prevalence or incidence rates against the populations of a particular country or region. The statistics used for prevalence/incidence of Lupus are typically based on US, UK, Canadian or Australian prevalence or incidence statistics, which are then extrapolated using only the population of the other country.

<table>
<thead>
<tr>
<th>Lupus in Eastern Africa (Extrapolated Statistics)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethiopia</td>
</tr>
<tr>
<td>Kenya</td>
</tr>
<tr>
<td>Somalia</td>
</tr>
<tr>
<td>Tanzania</td>
</tr>
<tr>
<td>Uganda</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lupus in Southern Africa (Extrapolated Statistics)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angola</td>
</tr>
<tr>
<td>Botswana</td>
</tr>
<tr>
<td>South Africa</td>
</tr>
<tr>
<td>Swaziland</td>
</tr>
<tr>
<td>Zambia</td>
</tr>
<tr>
<td>Zimbabwe</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lupus in Oceania (Extrapolated Statistics)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
</tr>
<tr>
<td>New Zealand</td>
</tr>
<tr>
<td>Papua New Guinea</td>
</tr>
</tbody>
</table>
Diagnosis of Lupus

- Difficult to diagnose Lupus
  - Lupus symptoms mirror other diseases’ symptoms, and Lupus symptoms often come and go

- No single lab test to diagnose Lupus
  - American College of Rheumatology (ACR) issued a list of 11 symptoms and tests to help diagnose Lupus patients.
    - A person with Lupus experiences at least four of these symptoms or prove positive to at least 4 of these tests. The symptoms do not have to occur at the same time though.

- Medical history (including family history)
- Complete physical examination
- Laboratory tests
- Skin or kidney biopsy
LUPUS RESEARCH

- How does the immune system work?
- What causes the disease?
- What is the best way to treat lupus?

✓ Clinical trials
✓ Identify genes
✓ Find a cause
✓ Test + develop new medications
✓ Find a cure
Be Like US TO INVESTIGATE LUPUS
COMMON LABORATORY TESTS

- Antinuclear Antibody (ANA)
- Anti DNA
- Anti-Sm
- Anti-RNP
- Anti-Ro (SSA)
- Anti-La (SSB)
Please choose Criteria for Search:

- Malar rash
- Discoid rash
- Photosensitivity
- Aphthosa
- Arthritis
- Serositis
- Nephritis
- Neurolupus
- Hematological involvement
- Immunological investigations
  - C3
  - C4
  - ANCA
  - ANA
  - IgA
  - IgG
  - IgM
  - IgAcl
  - IgGcl
  - IgMcl
  - IgA B2
  - IgG B2
  - IgM B2
  - LA
  - Factor V
  - 20210

[Search] [Clear] [Personal data] [Statistics]
<table>
<thead>
<tr>
<th>Activity Criteria Search</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please choose Activity criteria:</td>
</tr>
</tbody>
</table>

- Seizure
- Psychosis
- Organic brain syndrome
- Ocular manifestations
- Cranial nerve involvement
- Lupus headache
- CVA
- Vasculitis
- Arthritis
- Myositis
- Active urinary sediment
- Hematuria
- Proteinuria
- Piuria
- Alopecia
- Mucosal ulcerations
- Pleuritis
- Pericarditis
- Low complement level
- DNA
- High fever
- Thrombocytopeny
- Leukopeny

<table>
<thead>
<tr>
<th>PIN</th>
<th>Visit number</th>
<th>Date</th>
<th>Disease beginning</th>
</tr>
</thead>
</table>

[Search] [Clear] [Personal data] [Statistics]
Компютърни приложения за избрани ревматоидни заболявания

Съставители: И. Пенджуров, П. Михова

Thank You