**Open Source Drug Discovery for Infectious Diseases**

A case Application on Tuberculosis (Phase I)

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**INSTITUTE OF GENOMICS AND INTEGRATIVE BIOLOGY**

Samir, K. Brahmachari, CSIR-led OSDD Consortium
1 Institute of Genomics and Integrative Biology, Mall Road, Delhi -110007, India
2 Council of Scientific and Industrial Research, Anusandhan Bhawan, 2 Raifi Ahmed Kidwa Marg, New Delhi-110001, India.
skb@igb.res.in, info@osdd.net

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**Tuberculosis Facts and Figures**

- One third of the world’s population is currently infected with the TB bacillus.
- India is the highest TB burden country globally.

**Estimated TB Incidence Rate in 2006**

- India
- China
- Indonesia
- Nigeria
- Ethiopia
- Pakistan
- Bangladesh
- South Africa
- Philippines
- Sao-luisia
- Other HBC (13)
- Nov HBC (1)
- 1,850

**Candidate TB Drugs in Pipeline**

<table>
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<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
</tr>
</tbody>
</table>

**Diseases**

- Multidrug-resistant TB (MDR-TB)
- Resistance to Rifampicin (RIF)
- Resistance to Isoniazid (INH)
- Resistance to Ethambutol (ETH)
- Resistance to Streptomycin (SM)
- Resistance to Pyrazinamide (PZA)

**Work Plan for OSDD**

**How would it work**

- Open Source Drug Discovery Portal

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**The Promise of The Human Genome Sequencing**

- 11 June 1998 Vol 393 Nature

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**Predicative Therapy for Complex Diseases**

- Open Source Drug Discovery Portal

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**Portal Architecture**

- Linked XML Data tables
- XML processing/compression
- Knowledge Modules
- Microbution Module
- Other data management Modules

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**How would it work**

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**Work Packages**

**Phase-1**

- Identification of Targets
- Expression of Targets
- Validation of Targets
- Screening Development

**Phase-2**

- Preclinical Studies
- Clinical Trials

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**Mycobacterium tuberculosis SysBorg**

- A systems Biology platform for infectious diseases using Systems Biology of whole organism

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**Collaborate, Share, Discover**

- Genomics
- Biochemical Engineering
- Clinical Scientists
- M. tuberculosis
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