Ad2BioDB
Open Source Bioinformatics Platform for High-Throughput Data Management

Amitava Bhattacharyya\textsuperscript{1, §}, Andrea Calabria\textsuperscript{1, §}, Maurizio Mercurio\textsuperscript{2}, and Daniele Cusi\textsuperscript{1, 2, 3}

\textsuperscript{1} Dept. of Medicine, Surgery and Dentistry, Università degli Studi di Milano, Milan, Italy  \textsuperscript{2} KOS Genetic Srl, Via Podgora 7, Milan, Italy  \textsuperscript{3} Fondazione Filarete, Viale Ortles 22/4, 20139, Milano, Italy

§ Corresponding Authors

AB: amitava.bhattacharyya@unimi.it; AC: andrea.calabria@unimi.it; MM: mmercurio@kosgenetic.com; DC: daniele.cusi@unimi.it
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Introduction

• High Throughput Experimental data

• Available solutions
Bioinformatics platform development
Requirements

Adempiere as Bioinformatics Platform

- Multiple Data integration ➔ Experimental, Phenotype & Annotation Data
- Multi-Platform ➔ Operating System independent
- Reporting System ➔ Data summary and charts.

- Os independence and web access using Java & Zk.
- Open Source
- Administrative & business functionalities.

Adempiere, suitable backbone for biological data management software, Ad2Biodb
Bioinformatics platform development
Architecture

Application Server
- MVC-paradigm
- Presentation layer (Java, ZK)
- Web Access
- Business logic
- User actions (import/export/...)

Database Server
- Data management
- Data Integration
- User tracking history
- Events triggering

Processing Server
- Job management
- Data synchronization

14/10/2011

[Diagram image]
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Results

- Import
  - Data - Phenotype
    - Project
    - Phenotype
    - Job Details
  - Data - Genotype
    - Project
    - Job Details

- Export
  - Data - Phenotype
    - Projects
    - Phenotype
    - Filters
    - Job Details
  - Data - Genotype
    - Project
    - Phenotype
    - Genomic Area
    - Exclusion Criteria
    - Job Details

- Report
  - Data Structure Report
    - Project by Rows
  - Report Project
  - Report Cohort
  - Report Subject

- Process
- Workflow
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Usage Case

Export Data - Genotype

- Active
- Title: Export Test
- Job Description: Export phenotype BP for Cohort "Italian" and all SNPs for Illumina chip id "HG2.5SC_1"
- File Name: Test_HG2.5SC_1
- File format: .ped
- Specie: Human
- Choose Subjects by Cohorts: Yes
- Cohorts: Italian
- Cohorts Selected: Italian
- Convert missing values with: 
- Notes: This is a test for the export of data

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Usage Case
### Bioinformatics platform development

#### Usage Case

<table>
<thead>
<tr>
<th>Job Description</th>
<th>Export phenotype BP for Cohort &quot;Italian&quot; and all SNPs for Illumina chip id &quot;HG2.5SC_1&quot;</th>
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</thead>
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<tr>
<td>File Name</td>
<td>Test_HG2.5SC_1</td>
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<td>☑ Choose Subjects by Cohorts</td>
</tr>
<tr>
<td>Cohorts</td>
<td>Italian</td>
</tr>
</tbody>
</table>

**Job Details**

- **Start At**: Sep 20, 2011 11:10:00 AM CEST
- **Submit Job**

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*Inserted: 14/10/2011*
Conclusion

• Ad2BioDB integrates many heterogeneous biological data for complex knowledge extraction
• Beneficial features to biological data management.

Future Directions

• Improve Plugin System
• Improve Reporting tool
• Analysis