biowep: a workflow enactment portal for bioinformatics applications

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Rationale and goals
The distribution over the Internet of biological information and the heterogeneity of software tools that are used in bioinformatics makes the adoption of new data integration and analysis network tools a necessity. New ICT tools, like Web Services (WS) and Workflow Management Systems (WMS), can support the creation and deployment of such systems. Many WS are already available, as well as tools for implementing them and some WMS have been proposed in bioinformatics, the Taverna Workbench from EBI being the most known. They assume that end users know which bioinformatics resources can be reached through a programatic interface and that they are skilled in programming and in building workflows. A portal enabling unskilled researchers to take profit from these new technologies is still missing. We present here a user-friendly web system that can support selection and execution of a set of predefined workflows, thus simplifying access to all end users.

Results
We designed a web based client application that allows for the selection and execution of a set of predefined, annotated workflows. A prototype system is available on-line for testing purposes. It includes workflows that are devoted to the retrieval of data from IARC TP53 Mutation Database and from CABRI biological resources catalogues. Some of them have been made available both in Taverna and in BioWMS formats.

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Conclusions
The development and implementation of WS allowing the access to an exhaustive set of biomedical databases and analysis software and the creation of effective workflows through widely distributed WMS can significantly improve automation of in-silico analysis. biowep is available for interested researchers as a reference portal. They are invited to submit their workflows for insertion in the workflow repository.

Supplementary Information
Availability: Our system is partially based on open source. biowep is itself available under the GNU Lesser General Public Licence (LGPL). biowep is further being developed in the sphere of the Laboratory of Interdisciplinary Technologies in Bioinformatics.

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Tools:
Biowep: http://bioinformatics.istge.it:8080/biowep/
Taverna Workbench: http://taverna.sourceforge.net/
BioWMS: http://litbio.unicam.it:8080/biowms/ (demo under testing)
BioAgent: http://www.bioagent.net/
Hermes: http://hermes.cs.unicam.it/