OpenOmics Manifesto

December 16th, 2013

Introduction

In recent years, increasing amounts of bioinformatics data have become available. The reduction in the costs of genome sequencing and the importance these technologies are gaining in the healthcare sector and in public opinion [1] [2] suggests that, in the not-too-distant future many individuals will have their own genomic data in their possession.
Exploitation of this data enables improvement in the understanding of genomic mechanisms, revealing their relationship with traits, environment, diseases and drug responses; ultimately increasing people's quality of life and longevity. Effective exploitation increases with higher volumes of data, and with the diversification of the metadata (additional information about the individuals) involved.
Global data integration is needed to seize this extraordinary opportunity, but unfortunately we are far from achieving this. On June 3rd 2013, the *Global Alliance for Genomics and Health* white paper [3] was published, with the intention of establishing an international organization aimed at sharing genomic and clinical data securely as well as at creating a common framework for data analysis. The white paper recognized that opinions regarding genomic data sharing vary substantially among individuals and regulatory requirements also differ widely both from within and across different countries.
Engaging different governments and authorities in a collaborative action is expected to be a very difficult and inefficient task; however, we believe that a universal law prevails: every individual is free to publish his/her own data, without restriction.

Openness

We believe that the universal law above is the pillar on which we must base our path towards a global collaboration.
We believe in the need for a common repository where all interested individuals could altruistically publish their own data (genomic, environmental and phenotypic) making a direct and unique contribution to the common good.
We believe that this system must be non-proprietary, free and open. Open both in terms of participation and exploration. By making such data open, everybody could analyze, compare and benchmark it, and potentially find patterns that others have not identified.
We believe that this system must be neutral and global, able to be used equally, independently of geographical, ethnic, political or any other conditions.
We believe that this system must be incorruptible, not able to be governed by hidden interests and based on the collaboration and public merit of the participants.

Peer-to-peer

We need more than principles, ethical codes and good intentions, with respect to the sharing and exploitation of such valuable data contributed by individuals. We need a system that actually guarantees compliance with these principles.
A P2P (peer-to-peer) [4] network is a type of decentralized and distributed network architecture in which individual nodes (computers) act as both suppliers and consumers of resources. This is in contrast to the centralized client–server model, where client nodes request access to resources provided by central servers (server nodes) controlled by organizations.
P2P is the only infrastructure where the above features of the system could be (perpetually) guaranteed, given that in centralized architectures it is possible to modify the system in favour of private interests.
That is why we believe that such a system must be implemented as a P2P network, with free and open participation, where anyone interested could also contribute their own computer resources for the common good.

OpenOmics

OpenOmics [5] is a collaborative initiative aimed at creating just such a P2P open genomic database, under the same principles of openness defined here for the system itself.
Founded with this very specific objective of personal data sharing, the system is expected to extend to encompass more complex scenarios of global collaboration.

Objectives of the manifesto:

The primary intent of this manifesto is to reflect our motivation and beliefs and to turn them into principles that must prevail over time in the evolution of the *OpenOmics* project.
This manifesto is also a call for collaboration. If you want to participate in the project, you are welcome to visit the project site [1] to get more information.

Signatories:

The persons and entities referenced below share their stance on the importance of a platform such as the one described here with the principles defined:

Ignacio del Valle Alles
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Juan Cadiñanos Bañales
Rubén Cabanillas Farpón
Begoña Garcia Alonso
Nuria Vega Álvarez
Thibault Cholez
Richard Sinke

To add your name to the list of signatories follow the instructions in [6]

References:

[1] *Genomics England, 100K Genome Project,* http://www.genomicsengland.co.uk/
[2] *H3Africa (Human Heredity and Health in Africa),* http://h3africa.org/
[3] *Global Alliance for Genomics and Health* white paper, http://genomicsandhealth.org/files/public/White%20Paper%20June%203%20final.pdf
[4] CAMARILLO. *Peer-to-Peer (P2P) Architecture: Definition, Taxonomies, Examples, and Applicability,* http://tools.ietf.org/search/rfc5694
[5] *OpenOmics,* https://code.google.com/p/openomics
[6] Manifesto signing, https://code.google.com/p/openomics/wiki/Manifesto