Genome Network Platform

Genome Network Project: An Integrated Genomic Platform

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Abstract

The Genome Network Project aims to elucidate biological functions through genome searches in a reconstructed network of human transcriptional control. At the National Institute of Genetics (Japan), we have combined proprietary data with existing genomic information to construct a comprehensive database integrated into a browsable service, denominated "Genome Network Platform".

Introduction

The "Genome Network Viewer" is the main access point to this service. Through an intuitive interface, users can search and browse our data and results to test biological hypothesis.

Main features

● **Genome Explorer**

Genomic browser to search data. For instance, CAGE data (20 bp transcript tags from 5' end) produced by RIKEN can be localized in the genome.
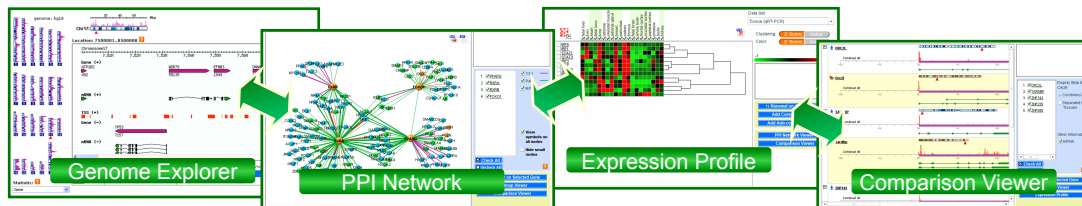
● **PPI Network**

A PPI network based on Y2H experiments (Hitachi) and public data. The shortest interaction path between proteins can be calculated with this feature.
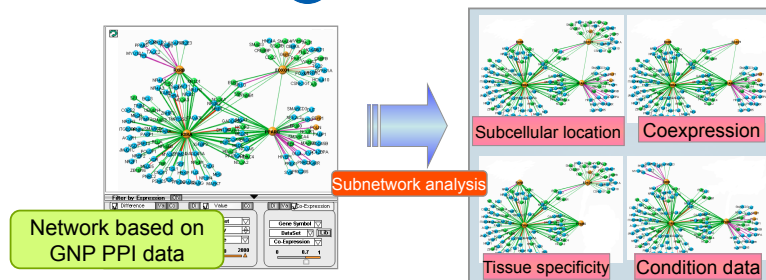
● **Expression Profile**

Gene expression patterns can be clustered to produce a heat map across tissues. Given an expression pattern, co-expressed genes can also be found.

● **Comparison Viewer**

Compare genomic areas between selected genes. Based on our proprietary CAGE data, transcripts and transcription start sites can be browsed in the genome.

Genome Explorer · PPI Network · Expression Profile · Comparison Viewer

Gene Network analysis capability

Network based on GNP PPI data — Subnetwork analysis → Subcellular location, Coexpression, Tissue specificity, Condition data

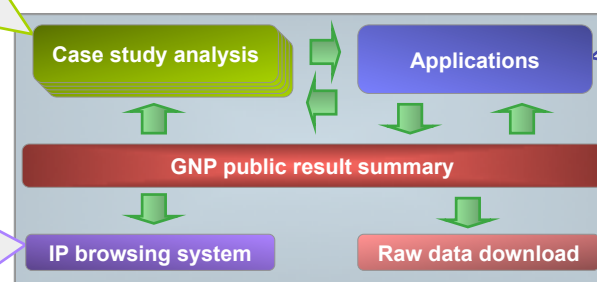From a complex PPI network, subnetworks corresponding to particular conditions can be chosen.

Emphasized conditions：
・Coexpressed genes／tissue specificity obtained from GNP data
・Disorders：OMIM、
・Subcellular location：GO

Coordination of GNP web services

Research projects under the Genome Network Platform:
•Cis-element prediction
•Effect of alternative splicing in PPI networks
•PPI data collection through text mining

Generated intellectual proprietary data is browsable. These include patent data, academic publications, bibliographic data, etc

Case study analysis → Applications

GNP public result summary

IP browsing system — Raw data download

Visualization tools to browse integrated data of the GNP. Coordination of several data viewers to make best use of browsing capabilities.

Summary of results by Genome Network Project.

Genome Network Project experimental data.

The disclosure of results of the Genome Netowrk Project is coordinated through a series of web services. Queries on particular candidate genes can be performed, providing a variety of detailed information. Raw data can be directly downloaded as well.

Genome Network Project
NIG Platform (Information System) Group

http://genomenetwork.nig.ac.jp