



- Flu

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- RNAi

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- Network Express

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- iHOP Network

- Robert Hoffmann (MSKCC)

Early Host Response During Influenza Infections

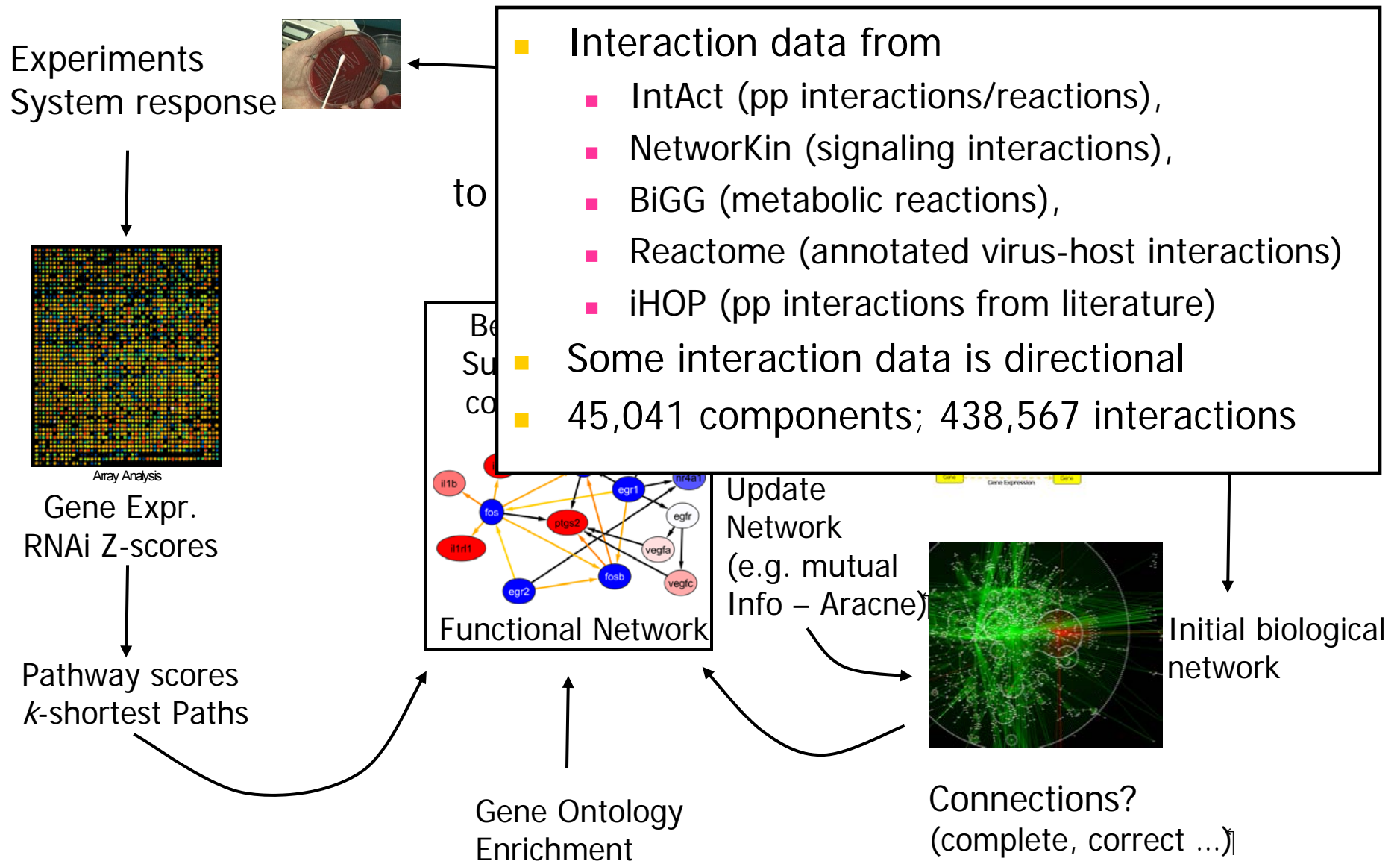
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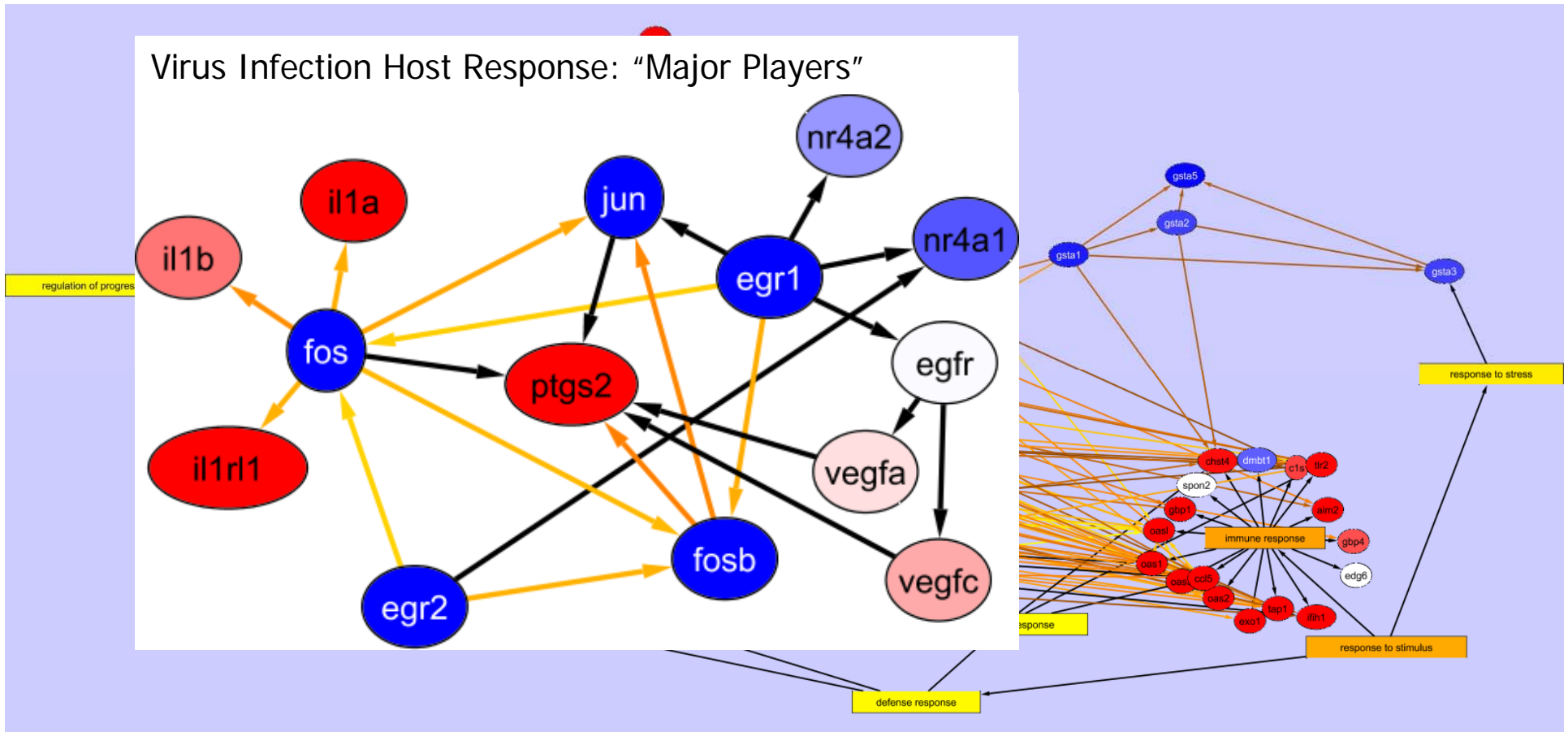
Host Response and Experimental Data

- Human bronchial epithelial cells (HBEC) used to study the whole genome response to influenza H5N1 strain, Respiratory Syncytial Virus (RSV) and Mock infections by microarray
 - Gene expression profiles for H5N1, RSV and Mock after 8h and 24h of infection in triplicates
- RNA interference screen using HBEC against Influenza A/WS/33 (H1N1)
 - RNAi screens of 21,125 targets and measurement of survival/death rates of host cells

Functional/Response Networks - Approach



Network of Enriched GO nodes (24h H5N1 Inf.)



Color Codes:

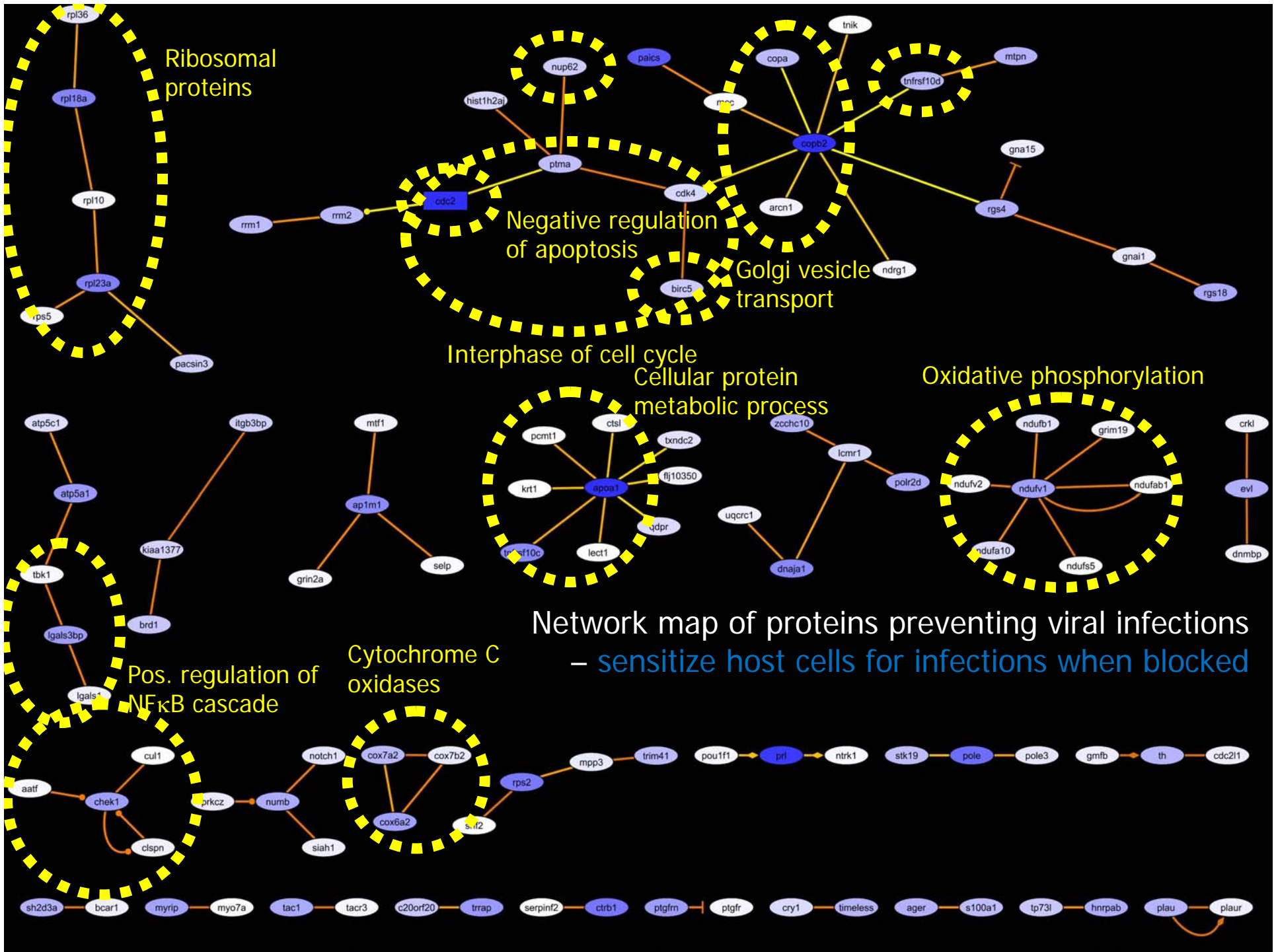
Nodes

Edges



Fold Change: >3 2 1 2 >3
down-regulated up-regulated

Score: 0 1/2 1



Conclusion

- Gene expression of H5N1 (vs. RSV/Mock)
 - Aggressive infection of H5N1 (faster time-scale compared to RSV/Mock)
 - GO Enrichment analysis
 - Immune response
 - Cell Cycle
 - Response to Virus
 - DNA Replication
 - Usual suspects: FOS, FOSB, EGR1/2, JUN
- RNAi experiments
 - Distinction between host-defense and virus replication
 - Host-defense: cell cycle, apoptosis inhibition, oxidative phosphorylation
 - Virus replication (immune response “deactivation”, viral RNA processing)