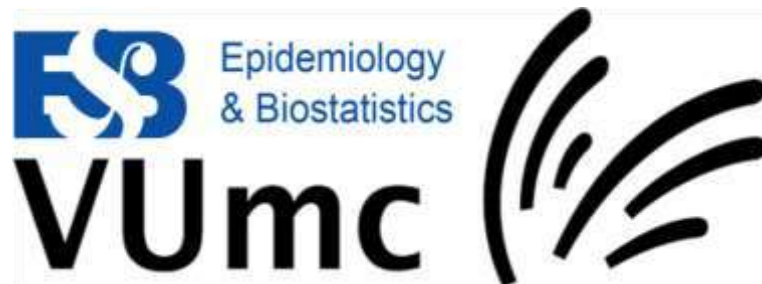
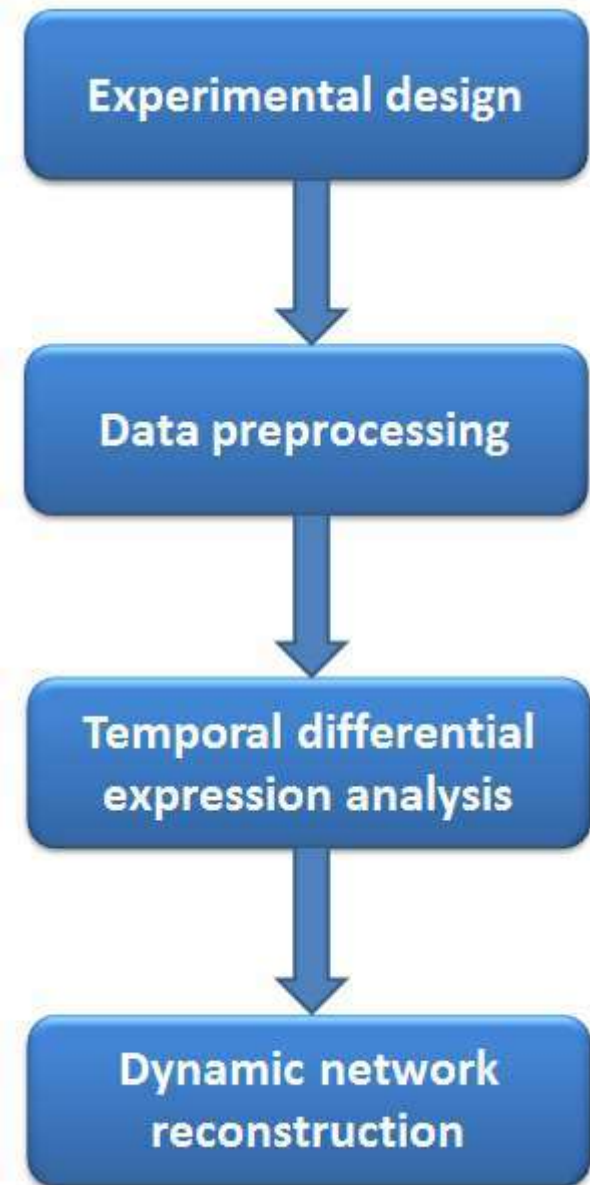
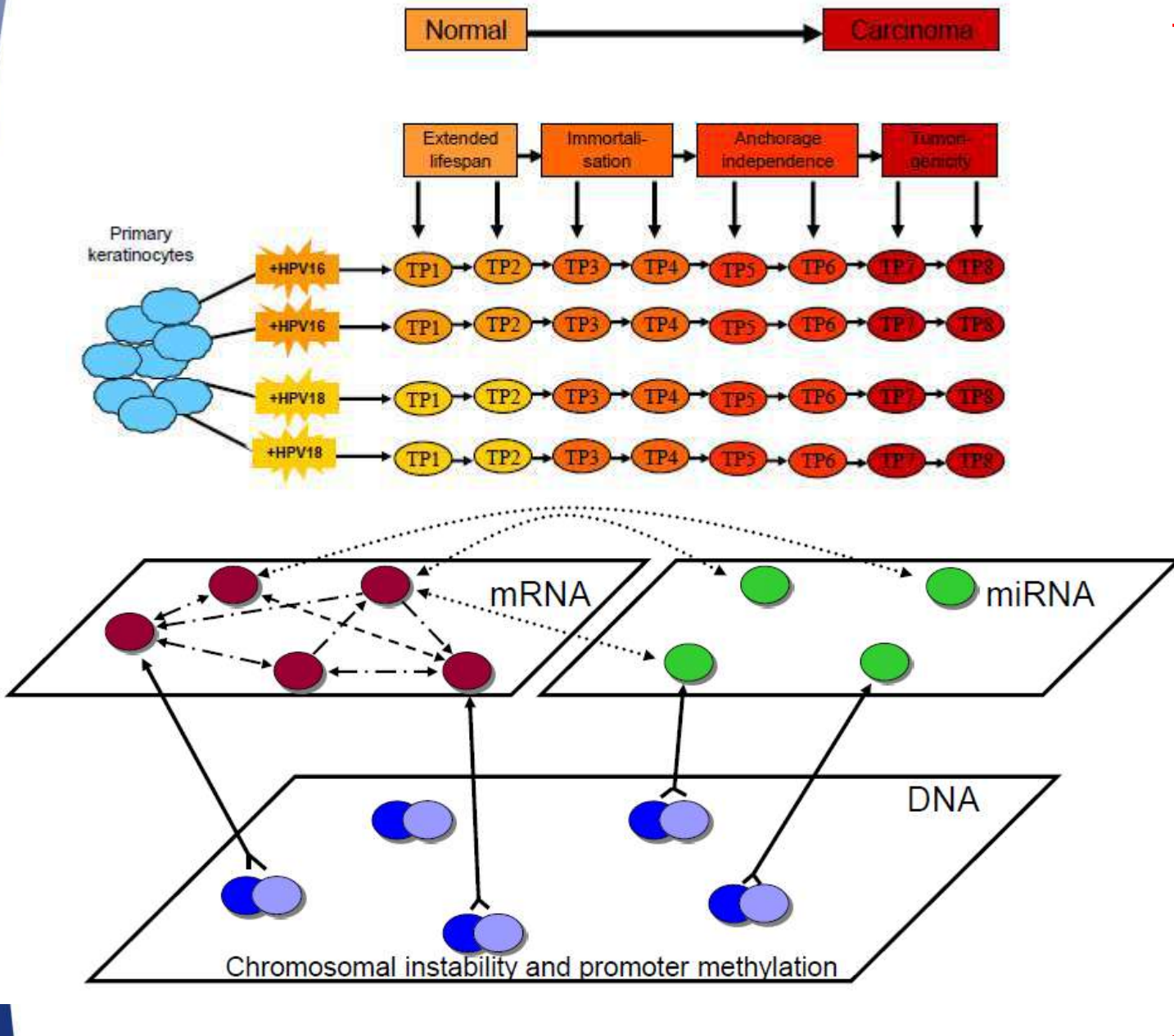


Integrative Statistical Modeling of Time-Series Omics Data

Viktorian Miok



What I did?



Article + tigaR package

Miok et al. *BMC Bioinformatics* 2014, **15**:327
<http://www.biomedcentral.com/1471-2105/15/327>



METHODOLOGY ARTICLE

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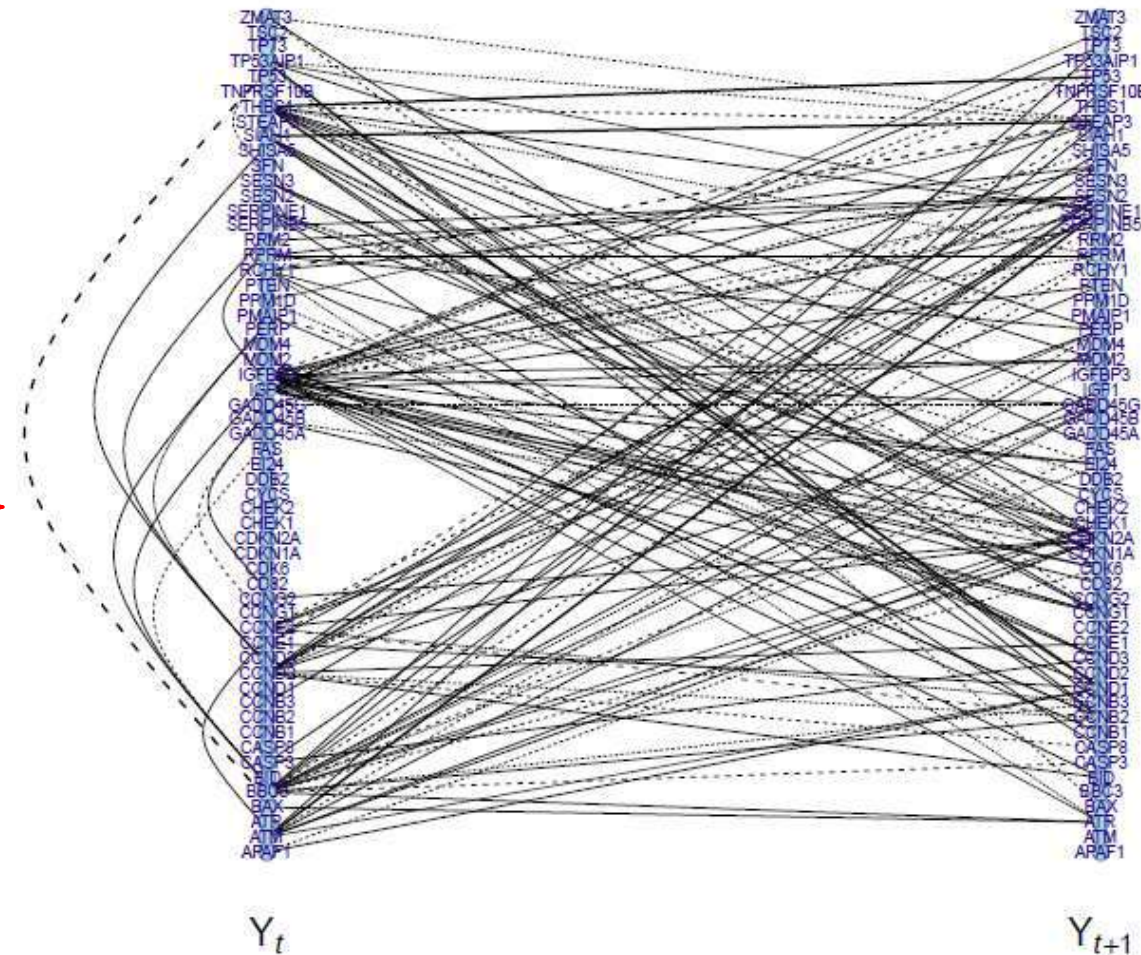
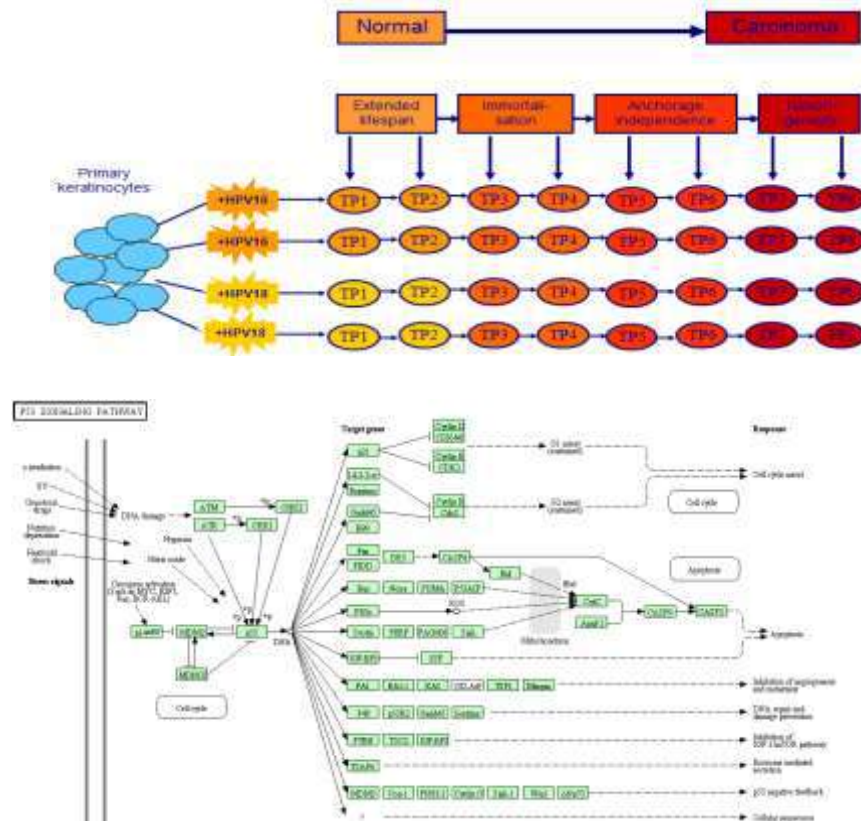
tigaR: integrative significance analysis of temporal differential gene expression induced by genomic abnormalities

Viktorian Miok^{1,2}, Saskia M Wilting², Mark A van de Wiel^{1,3}, Annelieke Jaspers², Paula I van Noort⁴, Ruud H Brakenhoff⁵, Peter JF Snijders², Renske DM Steenbergen² and Wessel N van Wieringen^{1,3*}



tigaR – temporal integrative analysis in R

Dynamics Network Reconstruction



$$\text{vec}[\hat{A}(\lambda_a)] = [\lambda_a \mathbf{I}_{p^2 \times p^2} + \hat{\Gamma}(0) \otimes \Omega_\varepsilon]^{-1} \{ \lambda_a \text{vec}(\mathbf{A}_0) + \text{vec}[\Omega_\varepsilon \hat{\Gamma}(-1)] \}$$

$$\hat{\Omega}_\varepsilon(\lambda_\omega) = \{ [\lambda_\omega \mathbf{I}_{p \times p} + \frac{1}{4}(\mathbf{S}_\varepsilon - \lambda_\omega \mathbf{\Omega}_0)^2]^{1/2} + \frac{1}{2}(\mathbf{S}_\varepsilon - \lambda_\omega \mathbf{\Omega}_0) \}^{-1}$$



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Research Paper

Ridge estimation of the VAR(1) model and its time series chain graph from multivariate time-course omics data

Viktorian Miok, Saskia M. Wilting, Wessel N. van Wieringen 

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Multi level dynamic network reconstruction

