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Data-driven knowledge discovery in polycystic kidney disease

Malas, T.

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Author: Malas, T.

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Stellingen

Behorend bij het proefschrift getiteld

Data-Driven Knowledge Discovery in Polycystic Kidney Disease

Tareq Malas

1. The explosion in biological data is revolutionizing the way we prevent, diagnose and treat diseases.
2. The vast amounts of biological data generated daily raise the need for data stewardship in life sciences addressing how we store, access, and handle data.
3. Meta-analysis of *omics* experiments can overcome noise attributed to intrinsic differences of scientific experiments - This thesis.
4. At the molecular level, there is a significant overlap in the expression profiles of ADPKD and renal injury, suggesting the possibility of repurposing treatment options of renal injury to ADPKD and vice versa - This thesis.
5. Combining expression profiles across various disease stages is a convenient method to model the molecular events involved in a disease and identify which genes/ pathways could be targeted to halt/ slow its progression - This thesis.
6. Drug repurposing based on combining transcriptomics (and other *omics* data) with chemoinformatics for clinically approved drugs speeds up drug target identification - This thesis.
7. Knowledge Graphs are a powerful tool to combine and integrate the biological data spread across online databases and the scientific literature into a single resource - This thesis.
8. "Although some in the scientific community see Open Science and data sharing as a "threat", even labelling those who use others' data as parasites, we believe that embracing and improving the Open Science tools already in place will facilitate better science, allowing us to harness the full potential of growing global scientific output." - Farnham, A., Kurz, C., Öztürk, M.A. et al. *Early career researchers want Open Science. Genome Biol* 18, 221 (2017).
9. "In data-intensive sciences, text is neither the only nor the most effective way to share scientific information." - Mons, B., van Haagen, H., Chichester, C. et al. *The value of data. Nat Genet* 43, 281–283 (2011).
10. Innovation in biological sciences has a significant impact on economies and our lives, stretching beyond health into agriculture, energy and even the goods we consume.