

# De-novo construction of organ-agnostic cancer modules and therapeutic application

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Propositions belonging to the thesis

“*De-novo* construction of organ-agnostic cancer modules  
and therapeutic application”

Zeinab M. Mamdouh, 27<sup>th</sup> of November 2023

1. In cancer, organ-based definitions are being replaced by genetic alterations, but therapies still only target single genes or canonical pathways.
2. Mechanism-based drugs targeting single tumour variants have improved some anticancer therapies, but overall prognosis remains unfavourable.
3. Canonical signalling pathways are curated man-made mind maps compiling specific signalling principles, but neither represent cellular reality nor disease mechanisms.
4. Disease modules constructed from risk or driver genes and validated protein-protein interactions offer more realistic cancer mechanisms.
5. Disease modules are best targeted through synergistic network pharmacology.
6. Profound discrepancies between databases on disease-relevant genes hinder precision medicines.
7. Repurposing registered drugs shortens the time from basic research to patient benefit.
8. Patient derived cells can be used to pre-test clinical anticancer network pharmacology.
9. “O Allah, I seek refuge in You from knowledge which does not benefit” (Prophet Muhamad ﷺ)
10. A hypothesis can never be proven, only rejected. (Karl Popper)
11. You miss 100% of the shots you don't take. (Wayne Gretzky)