

OmniPath: prior knowledge for multi-omics analysis



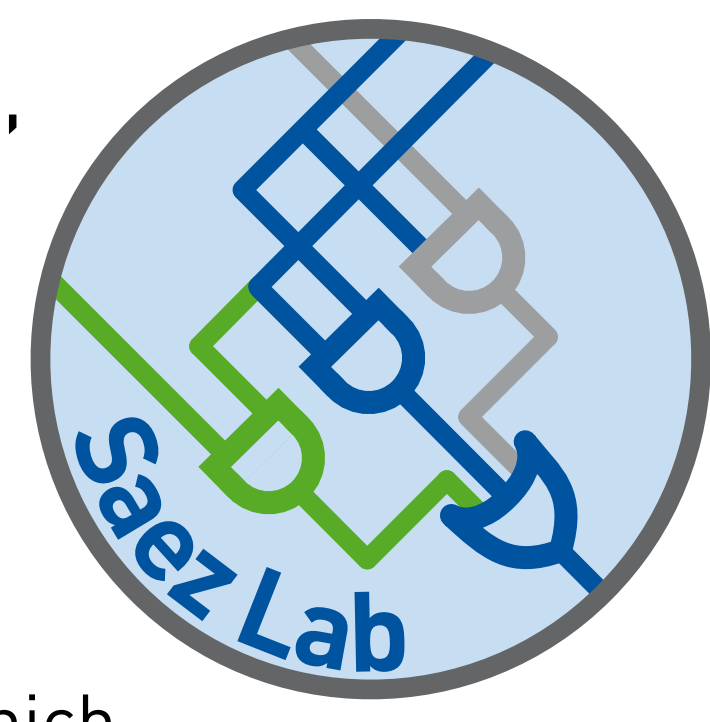
@omnipath



@saezlab



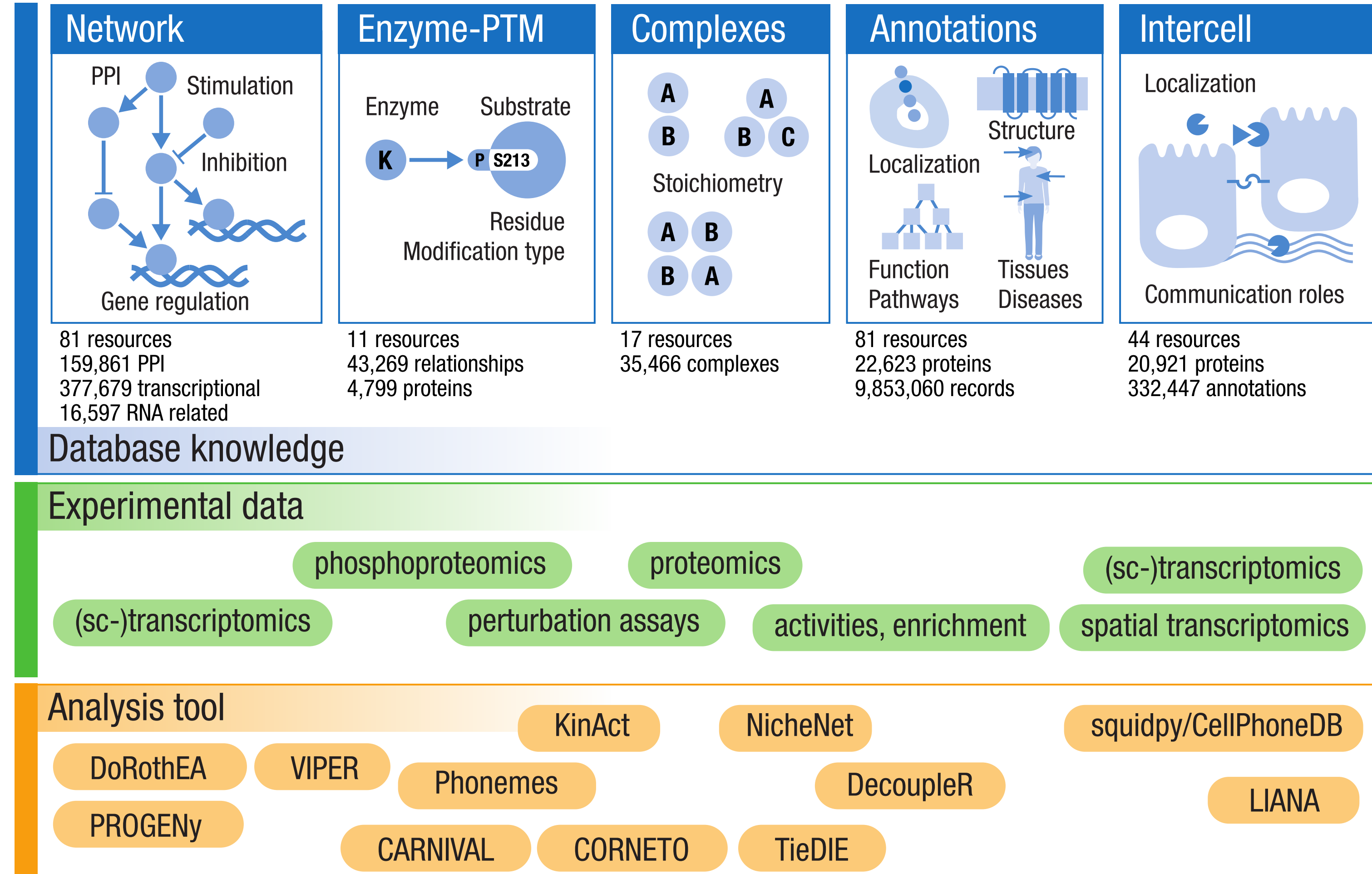
turei.denes@gmail.com



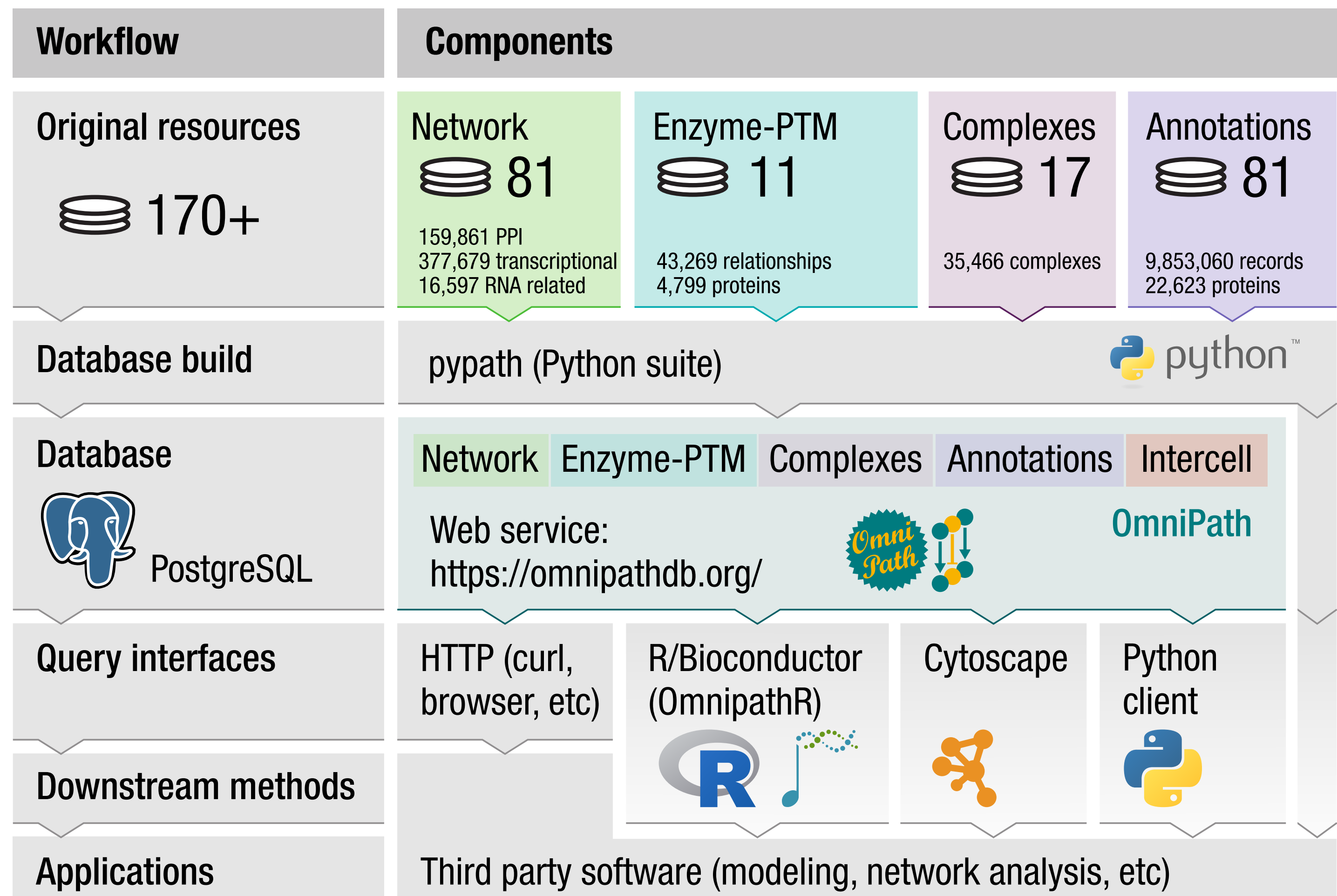
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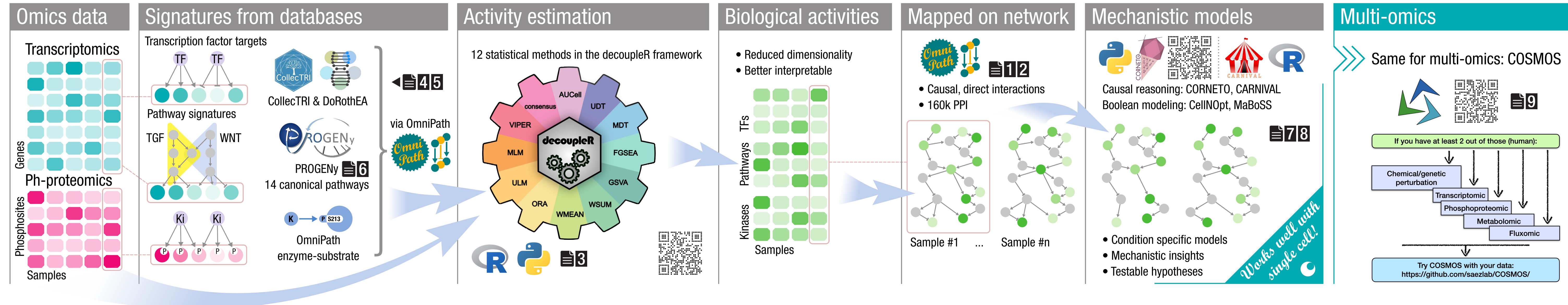
Contents and applications



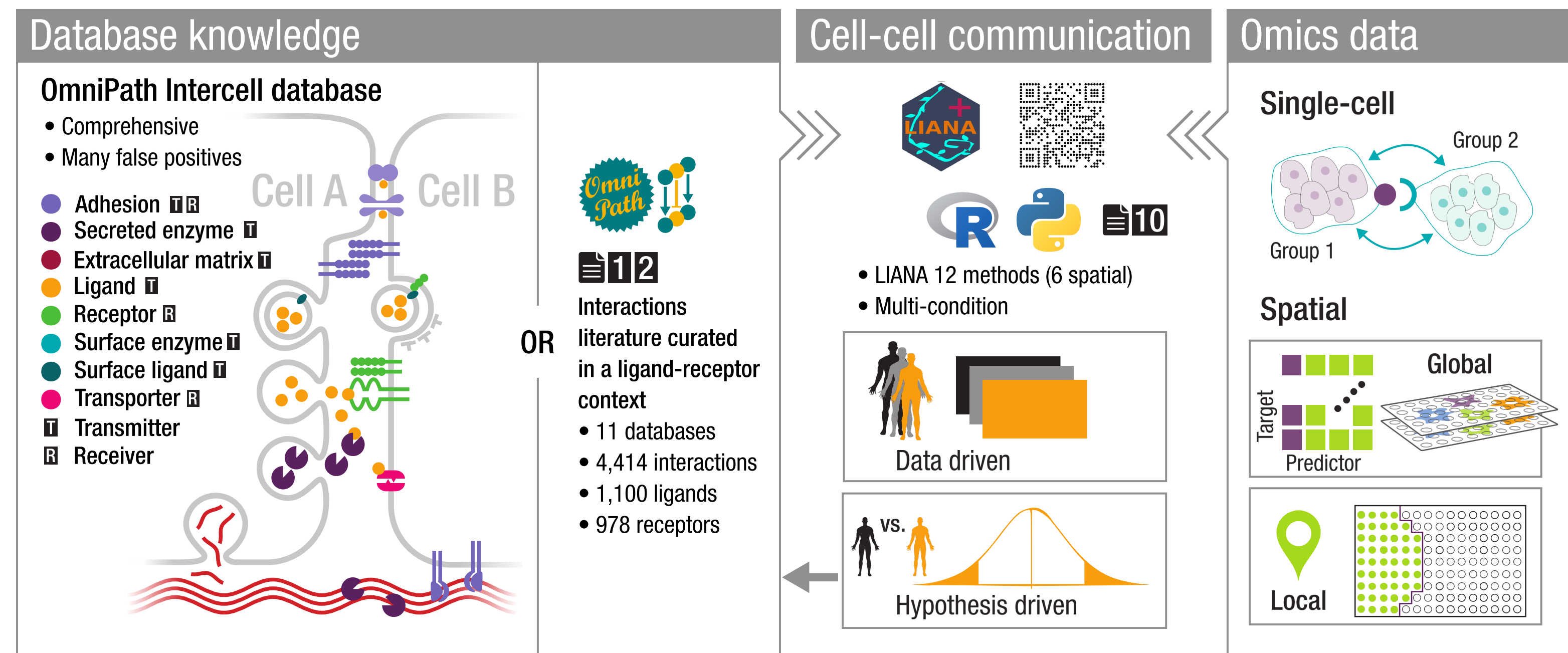
Technical architecture



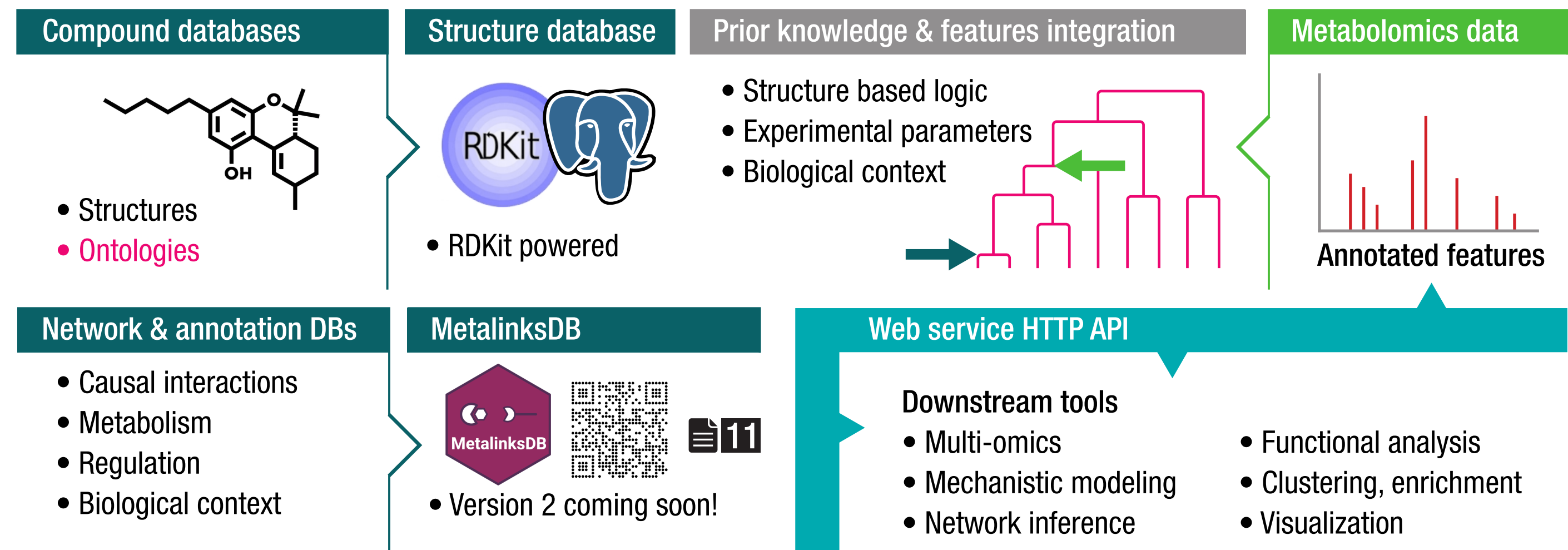
Mechanistic modeling workflows



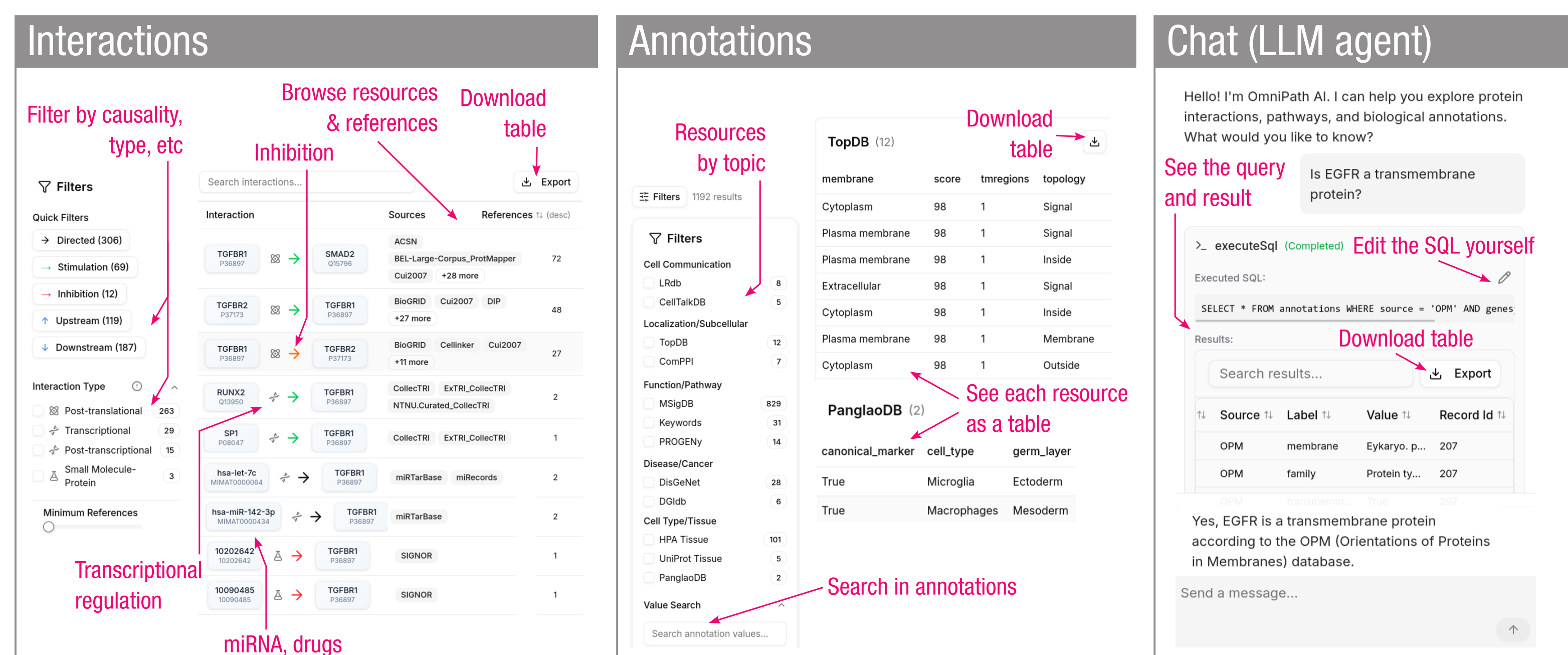
Cell-cell communication



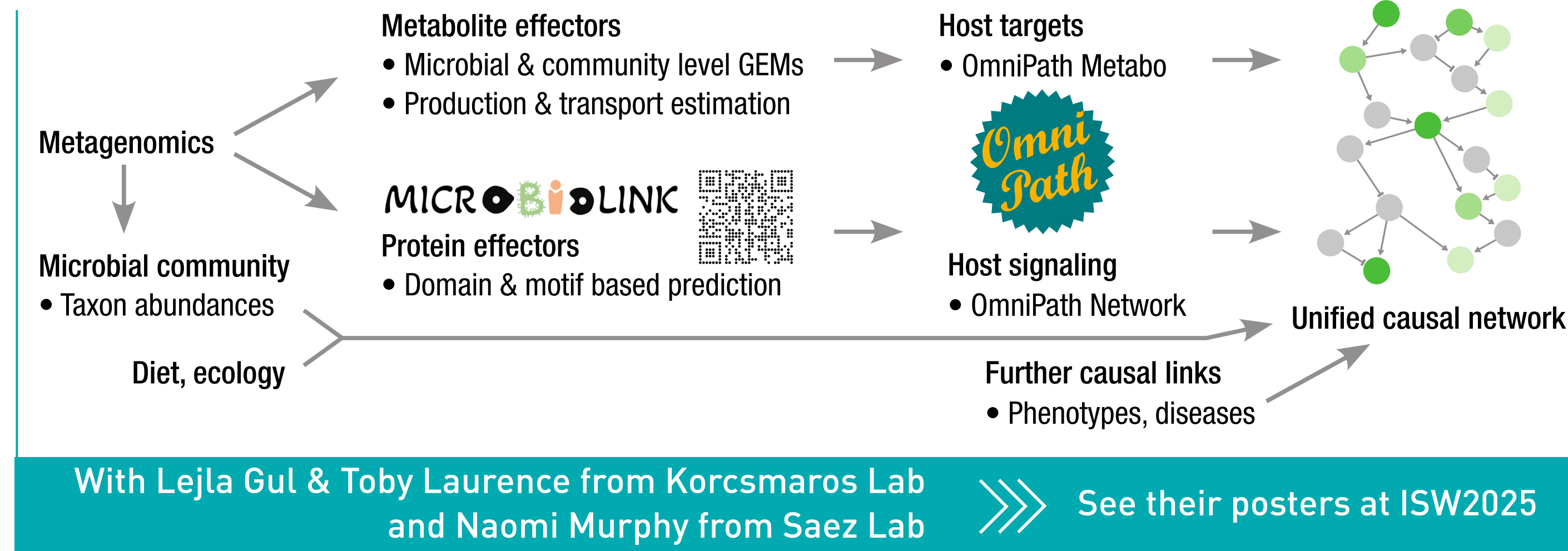
Coming soon: OmniPath Metabo



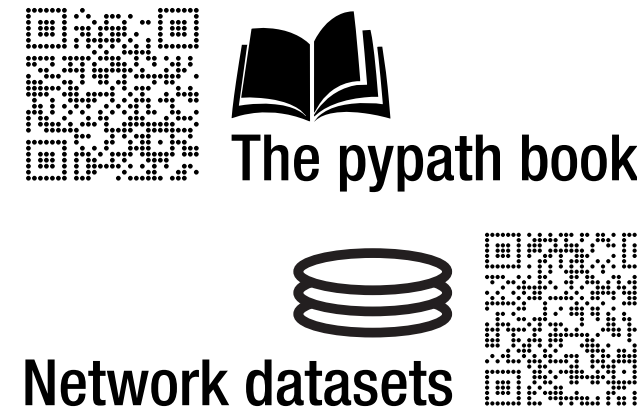
OmniPath Explorer



In planning: OmniPath Microbio

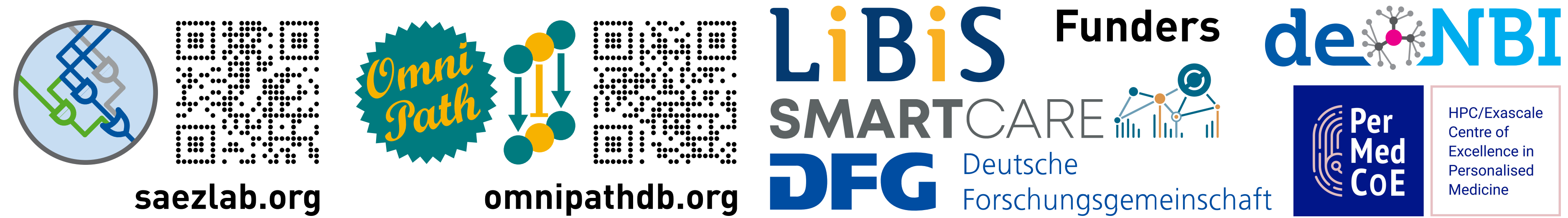


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References

- 1 Türei et al. Mol Syst Biol 17(3):e9923 (2021).
- 2 Türei et al. Nat Methods 13(12):966-967 (2016).
- 3 Badia-i-Mompel et al. Bioinform Adv 2(1):vbac016 (2022).
- 4 Müller-Dott et al. NAR 51(20):10934-10949 (2023).
- 5 Garcia-Alonso et al. Genome Res 29(8):1363-1375 (2019).
- 6 Schubert et al. Nat Commun 9(1):20 (2018).
- 7 Rodriguez-Mier et al. Nat Mach Intell 7:1168-1186 (2025).
- 8 Liu et al. NPJ Syst Biol (5):40 (2019).
- 9 Dugourd et al. Mol Syst Biol 17(1):e9730 (2021).
- 10 Dimitrov et al. Nat Cell Biol 26(2024):1613-1622 (2024).
- 11 Farr et al. Brief Bioinform 25(4):bbae347 (2024).



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