Proteim

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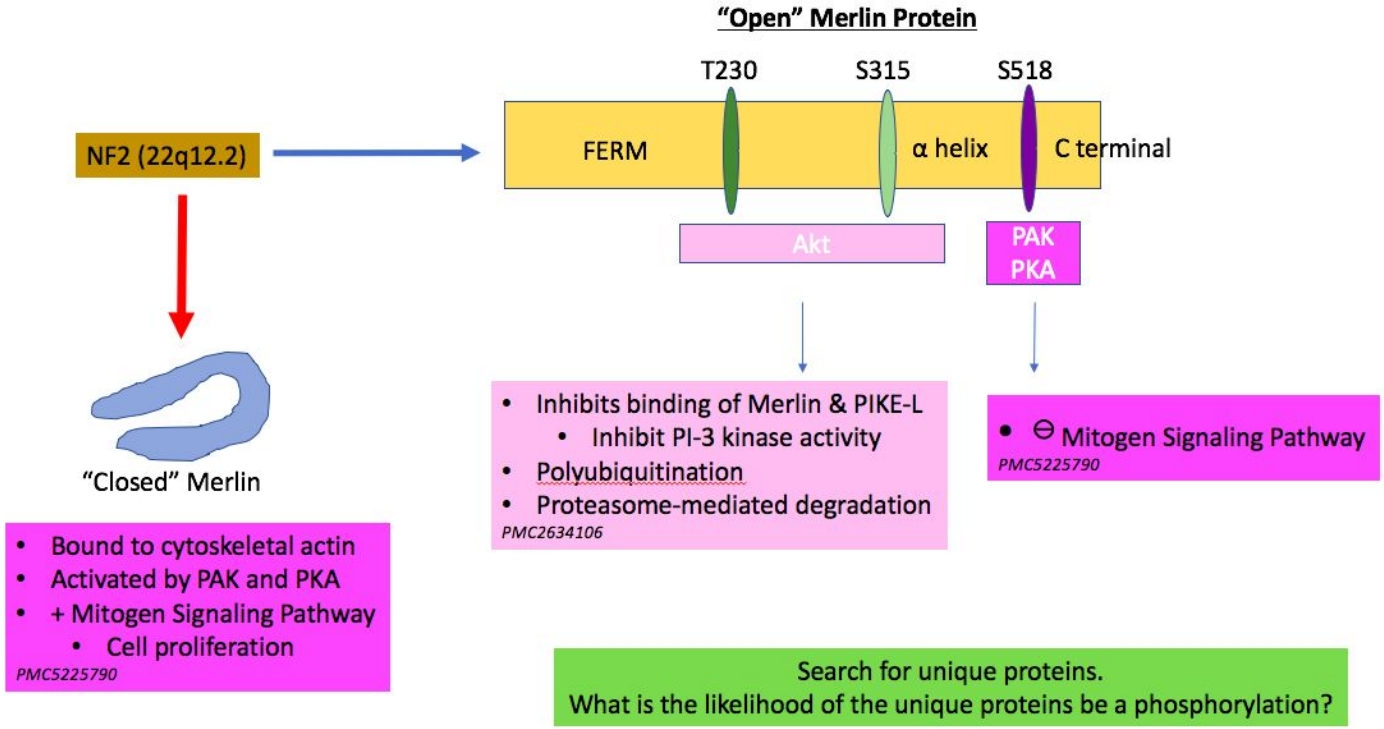
SVAI Hackathon

Background


"Open" Merlin Protein
T230
S315
S518
NF2 (22q12.2)
FERM
α helix
C terminal
Akt
PAK
PKA
"Closed" Merlin
• Bound to cytoskeletal actin
• Activated by PAK and PKA
• + Mitogen Signaling Pathway
• Cell proliferation
PMC5225790
• Inhibits binding of Merlin & PIKE-L
• Inhibit PI-3 kinase activity
• Polyubiquitination
• Proteasome-mediated degradation
PMC2634106
• ⊖ Mitogen Signaling Pathway
PMC5225790
Search for unique proteins.
What is the likelihood of the unique proteins be a phosphorylation?

Objectives

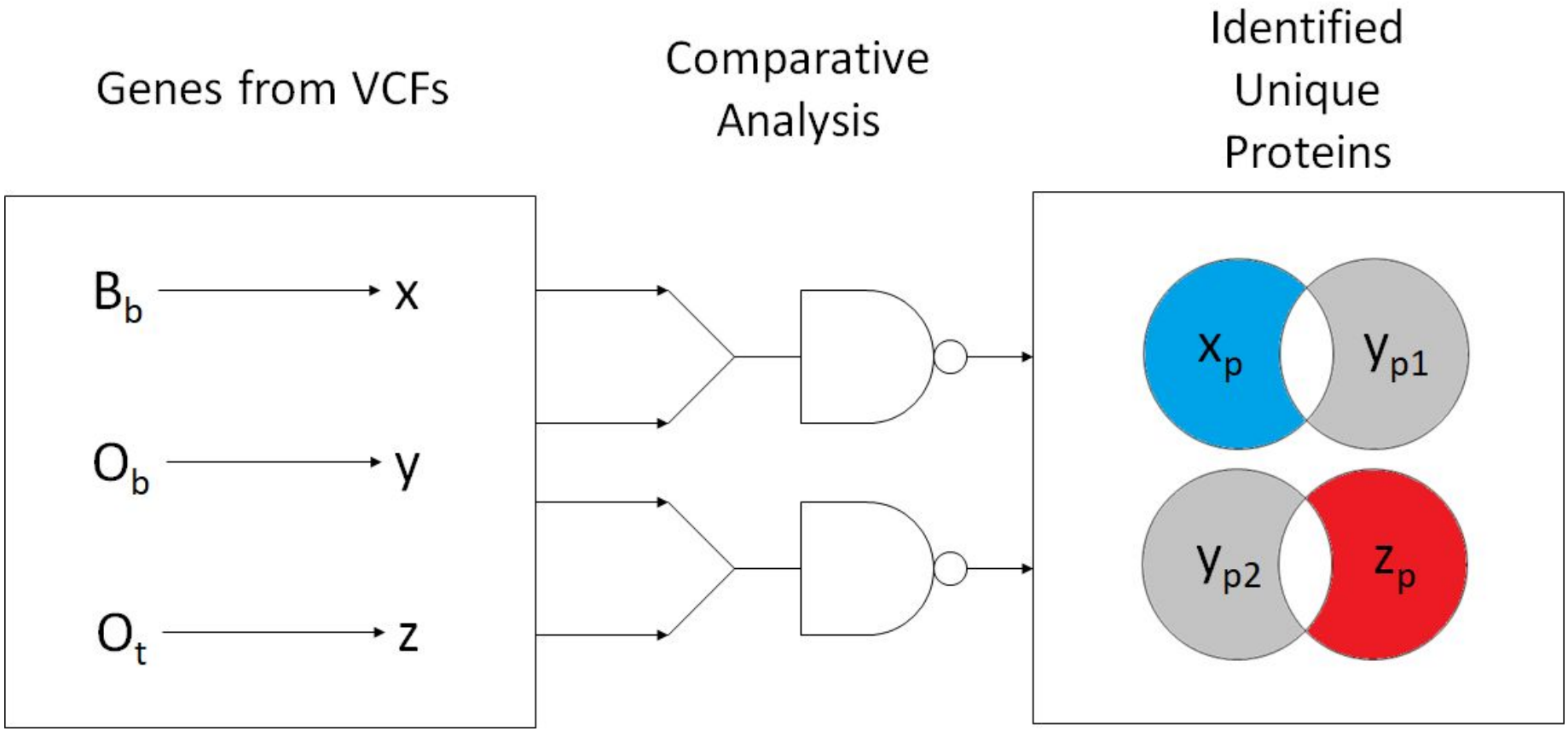
Identify unique proteins that can be used as a drug target

Which genes are absent/present between Onno's blood/tumor/brother sample

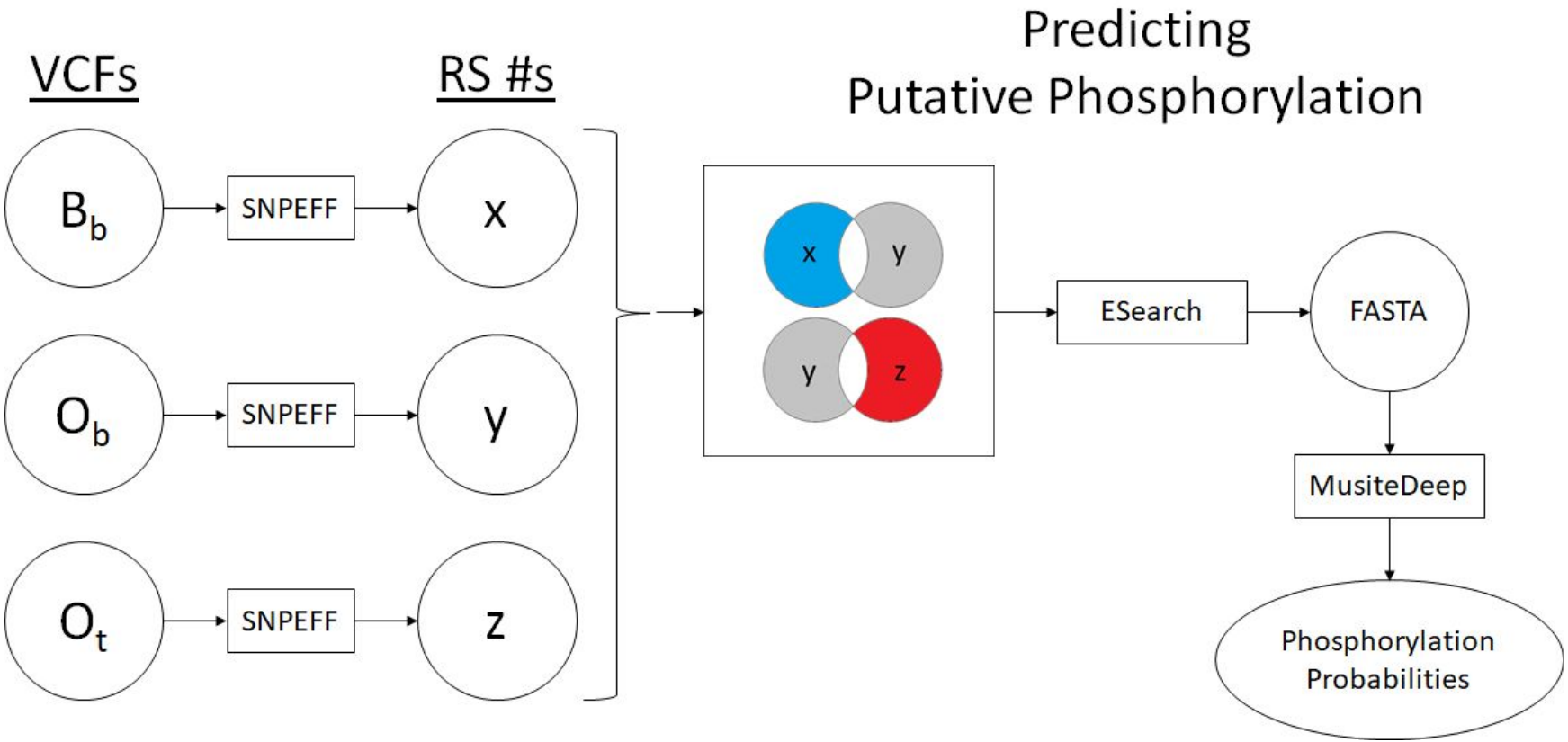
Identify differences in the number of putative phosphorylated proteins

NF2_xy_s (Brother's blood)	vs	OF_112015SJ1A_2 (Onno's blood)
OF_112015SJ1a_2 (Onno's blood)	vs	OF_010116NF2_a (Onno's tumor)

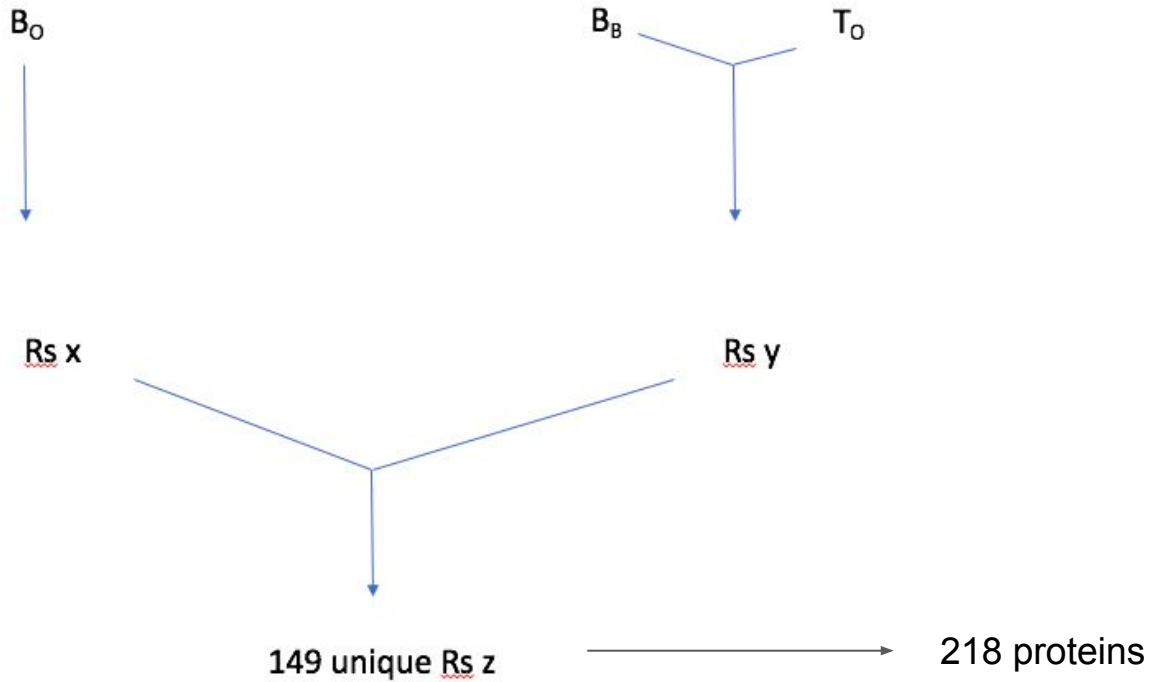
Methods (Overview)



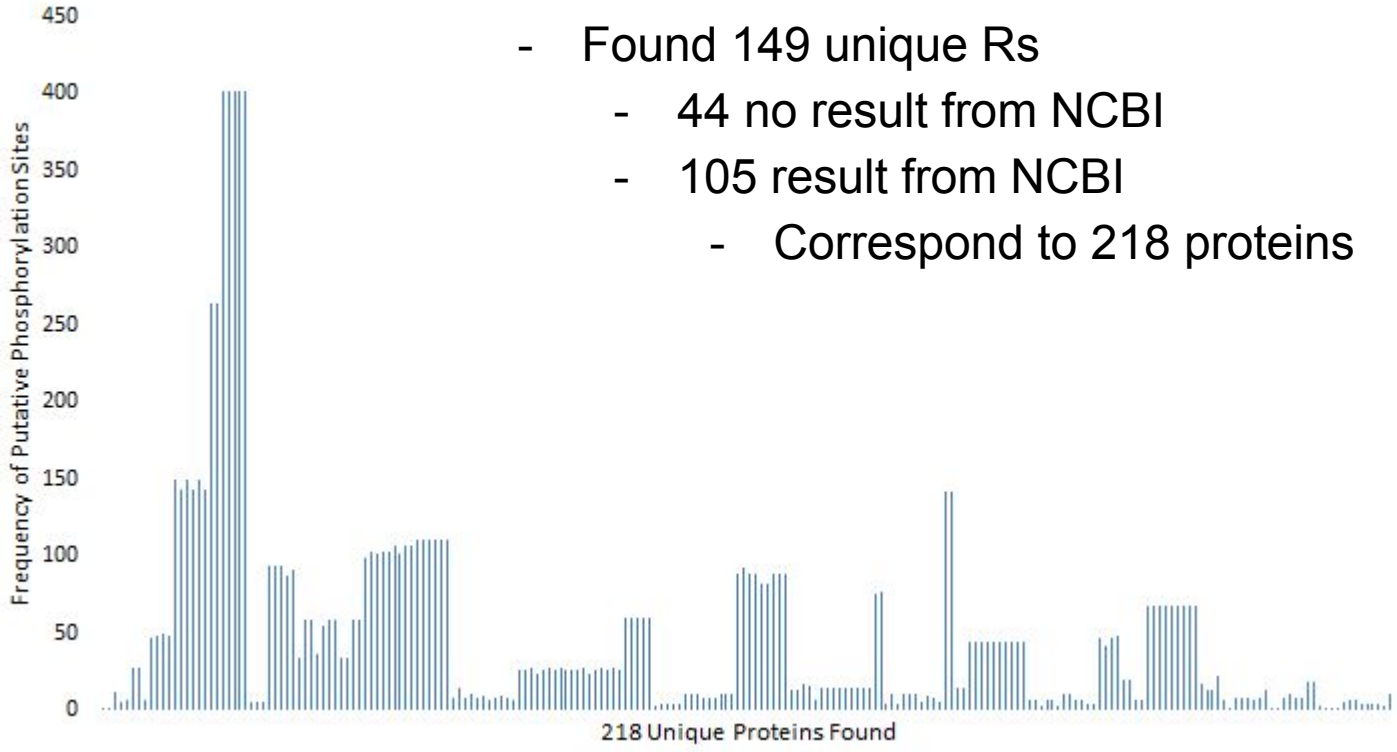
Methods (Genomic Tools) Ideal



Methods (Actual)



Results



- Found 149 unique Rs
  - 44 no result from NCBI
  - 105 result from NCBI
    - Correspond to 218 proteins

Conclusion

- Obtained candidate unique proteins that have the high likelihood of phosphorylation site.
- Challenges: 2 samples in 1 file
- Implications/ Further studies
  - Can feed through a new drug pipeline?
  - Can be used as marker for disease progression?

Acknowledgements

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