Aaron S. Meyer
Research and Teaching Plans

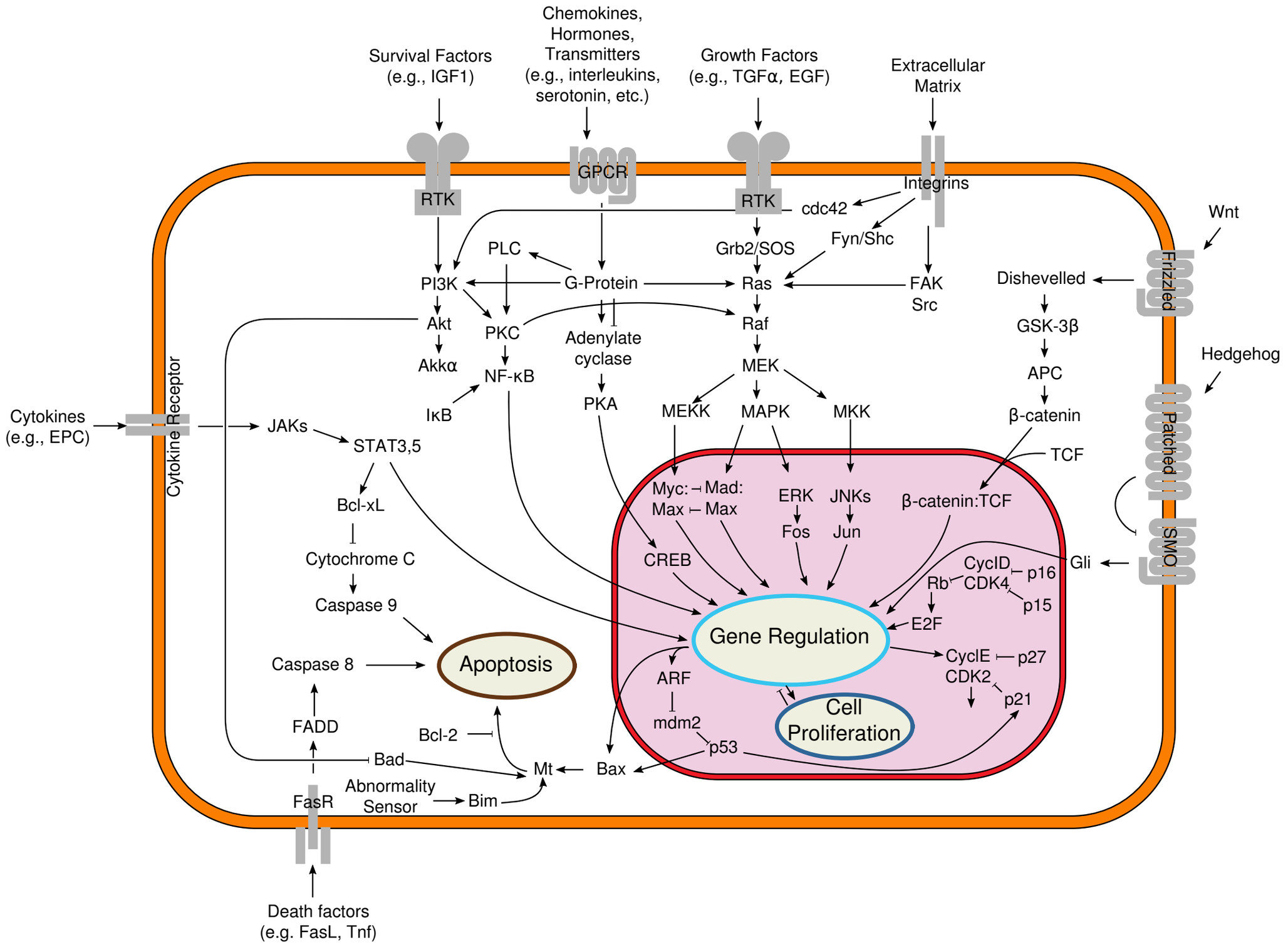
Aaron Meyer
University of California, Los Angeles
March 20, 2017

Research Focus 1
Research Focus 2
Timeline
Teaching

KOCH INSTITUTE for Integrative Cancer Research at MIT

Massachusetts Institute of Technology

Cell signaling is complex, and challenging to apply toward a desired goal



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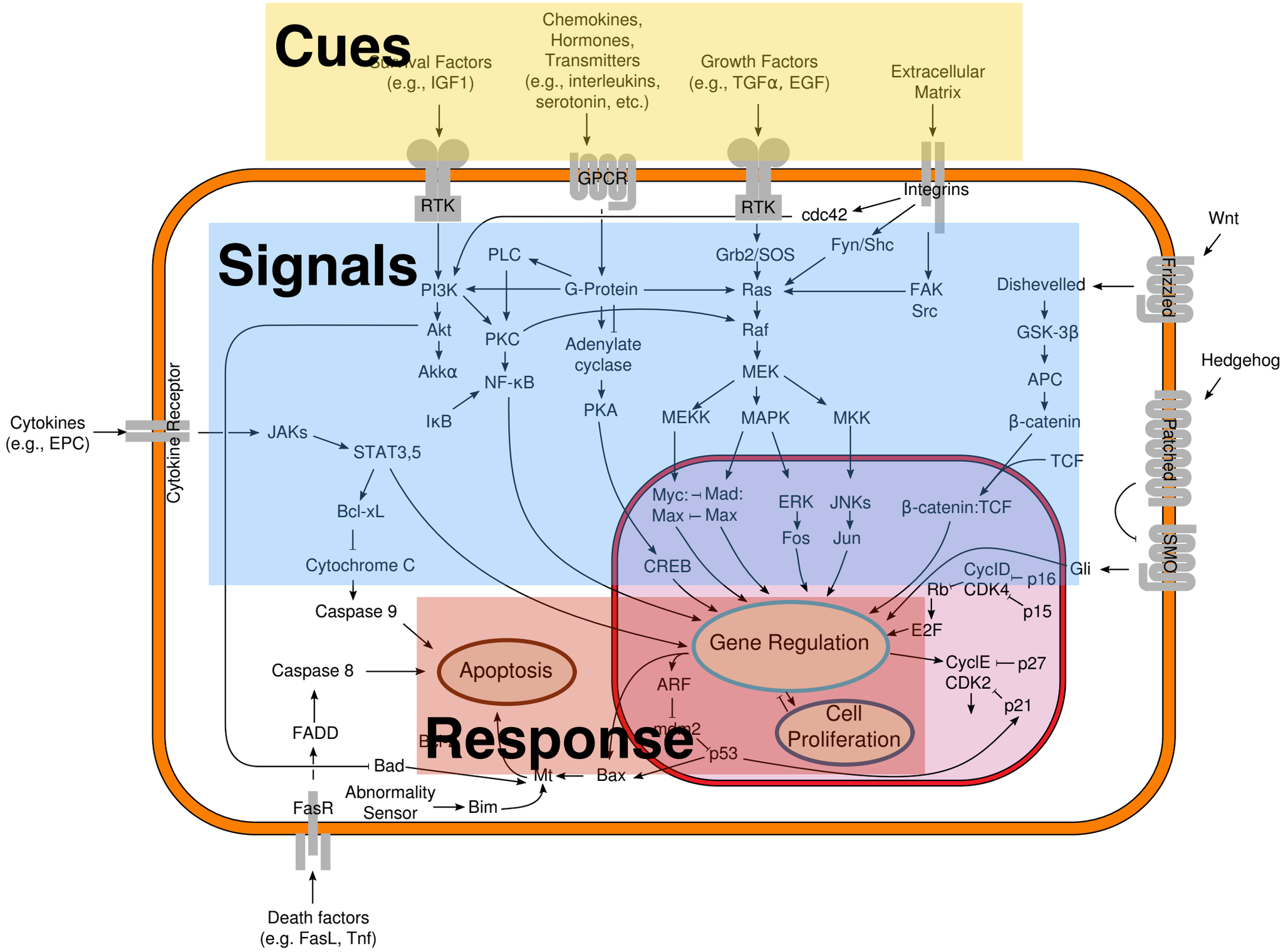
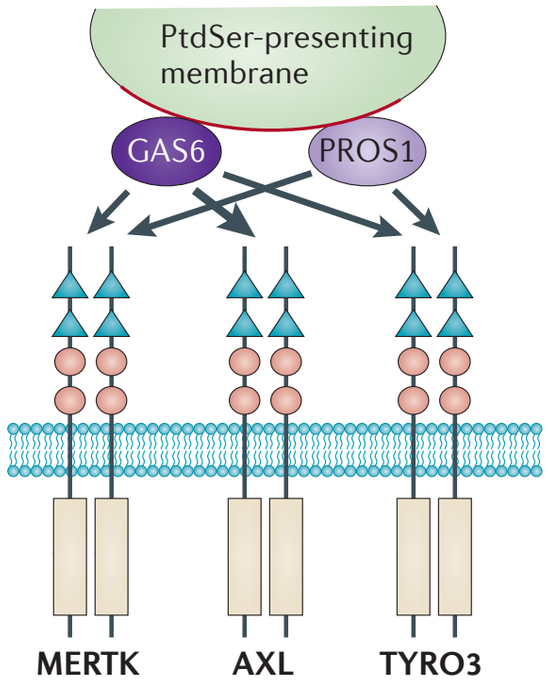


Research Focus 1: Model-Based TAMR Inhibitor Design



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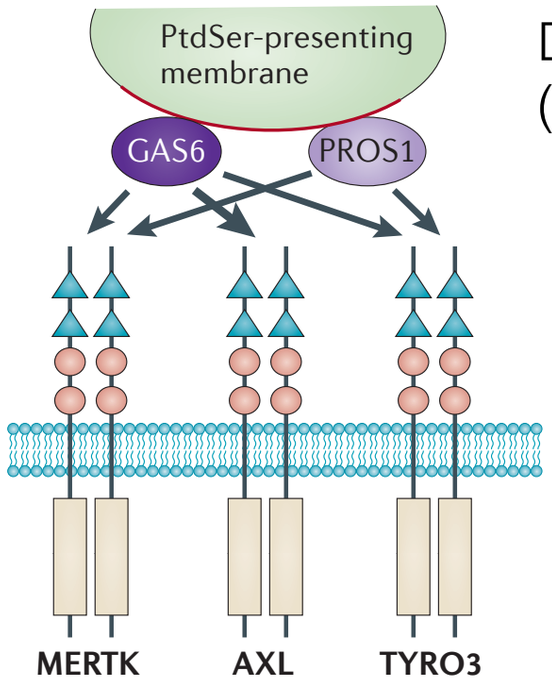

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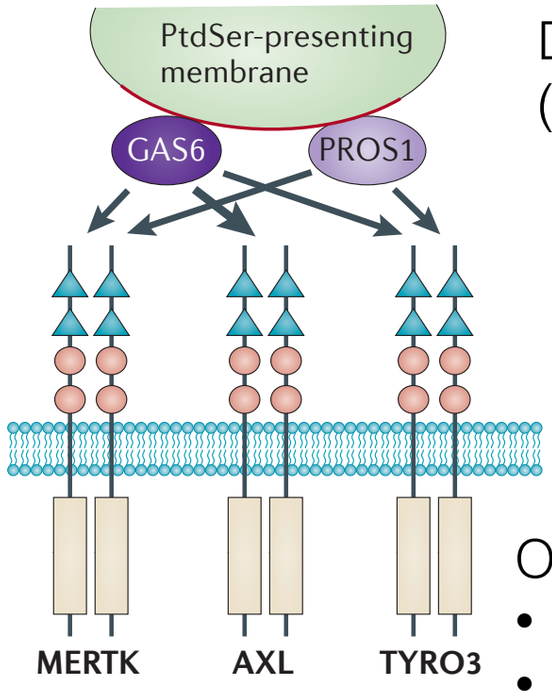

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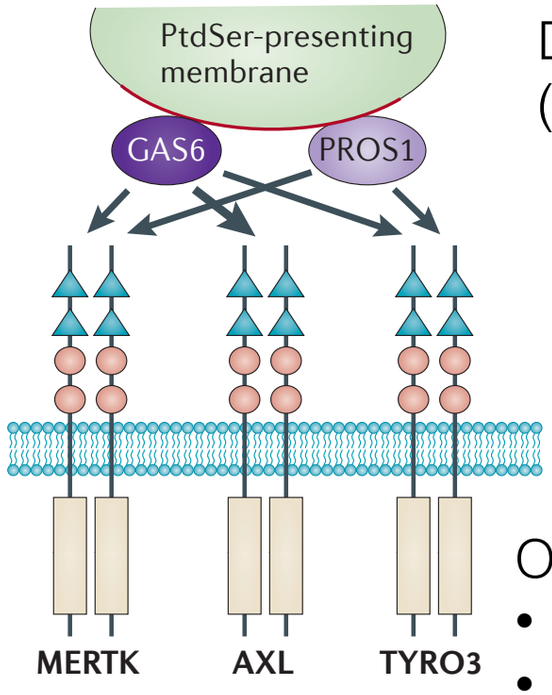

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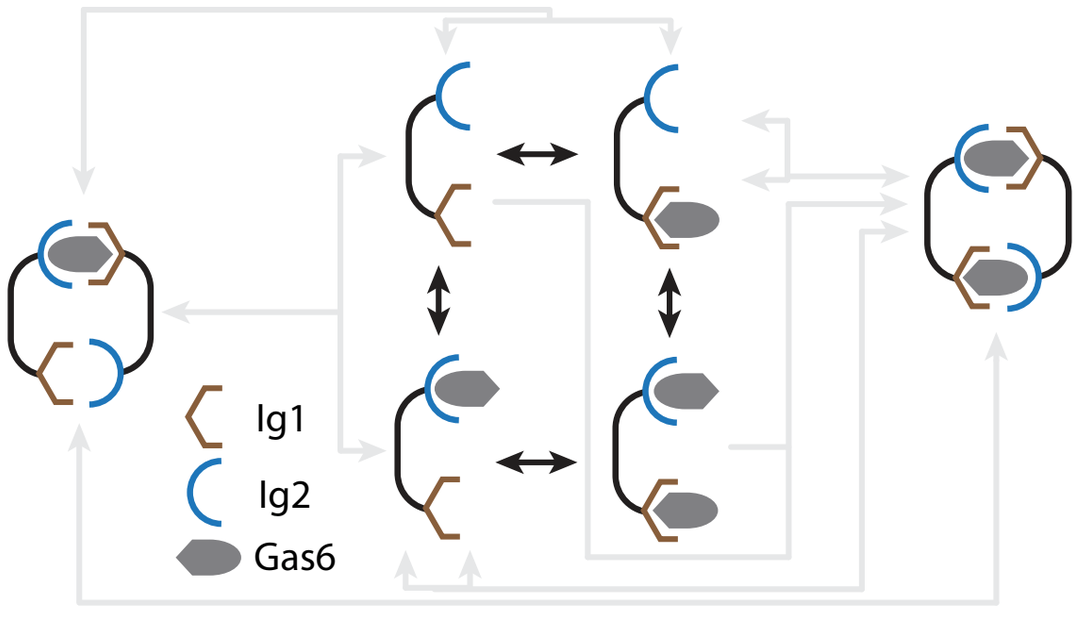

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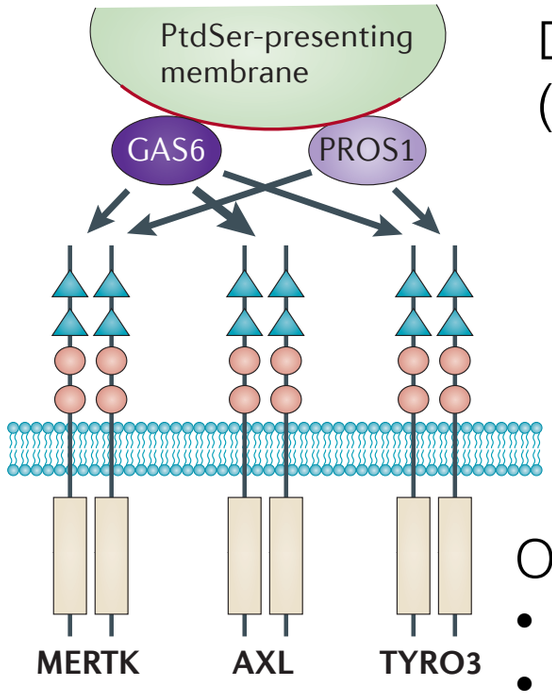

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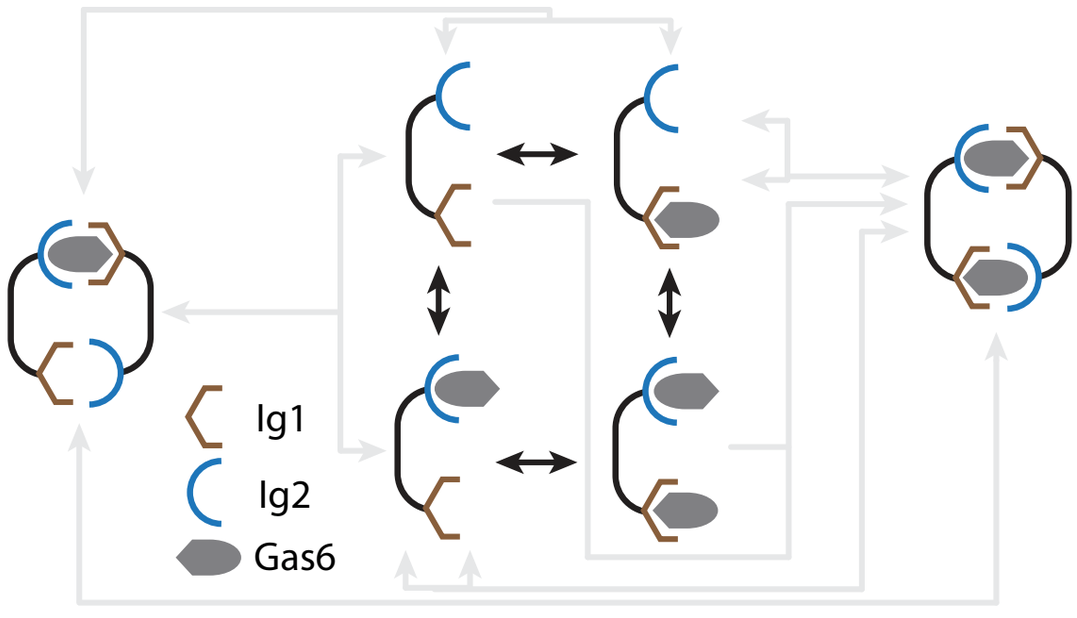

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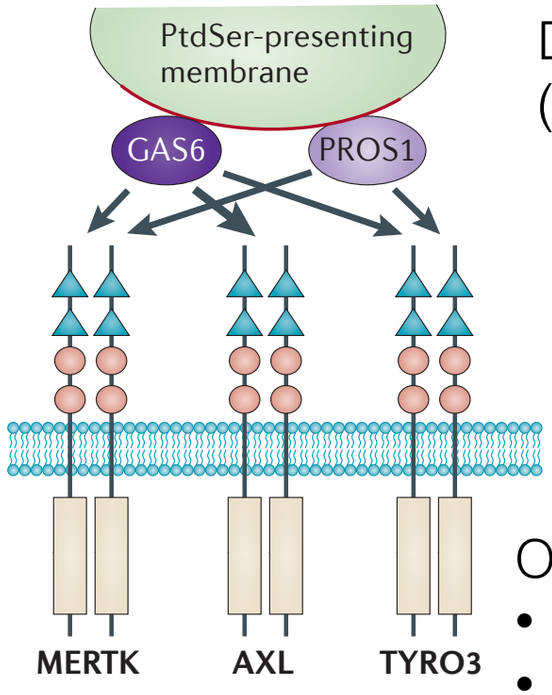

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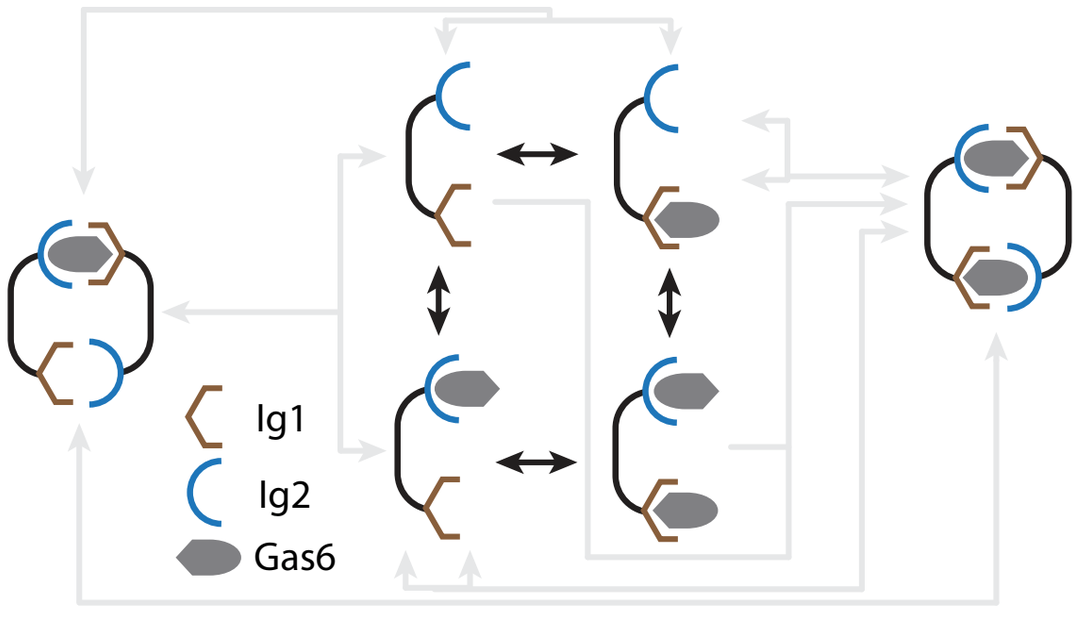

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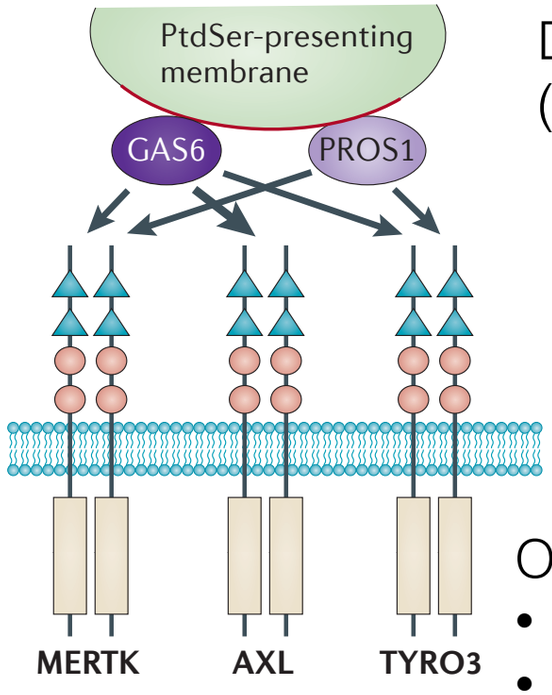

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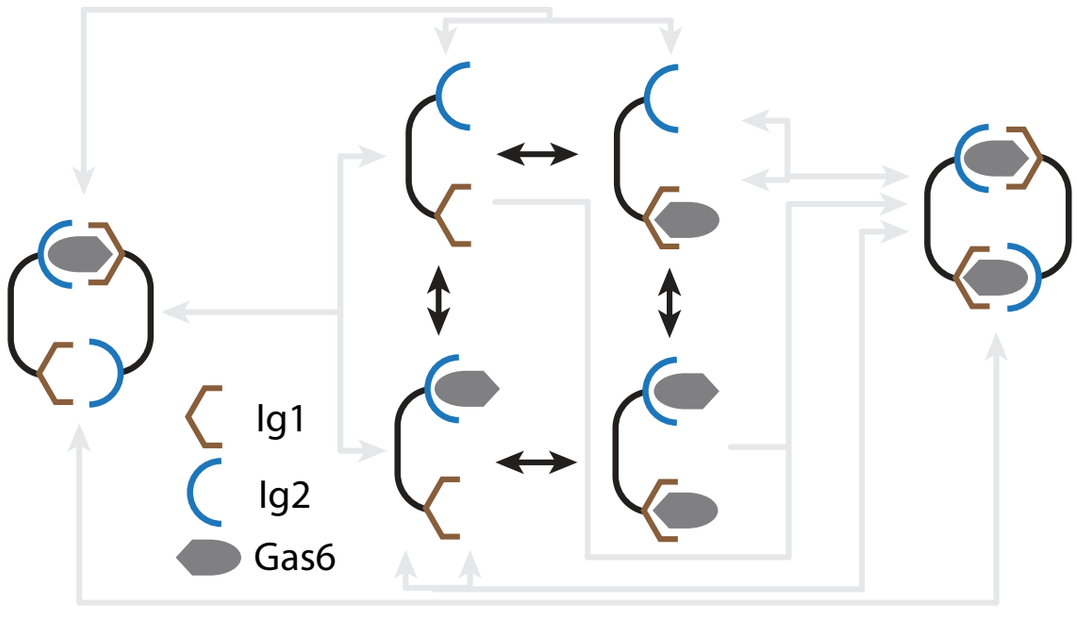

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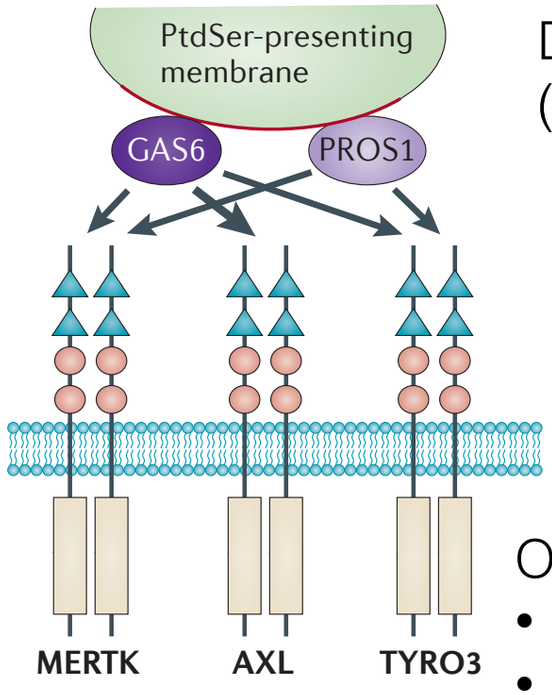

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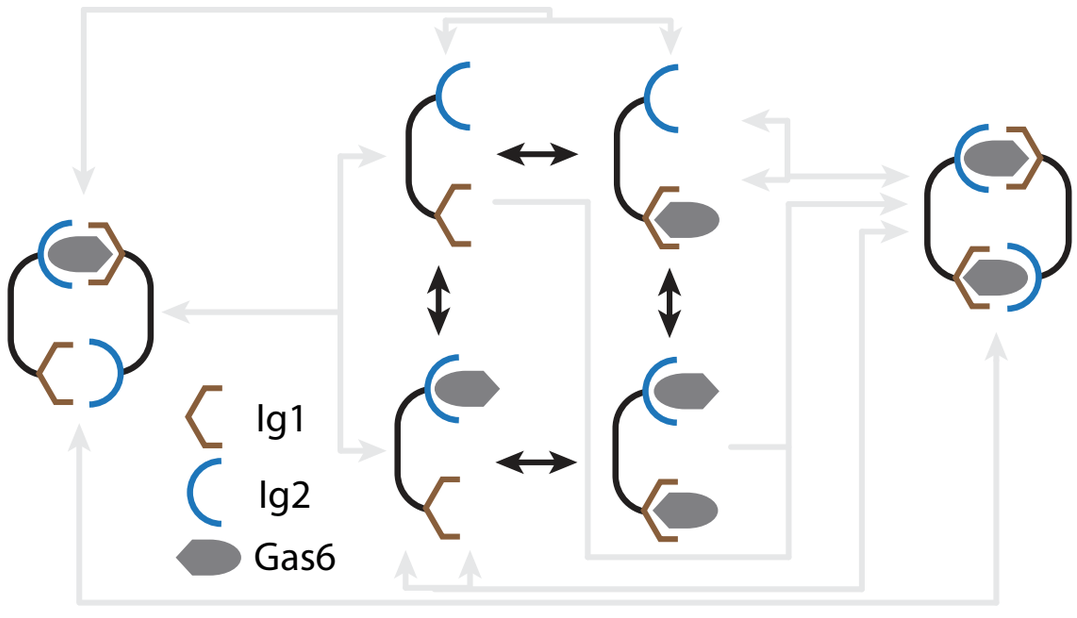

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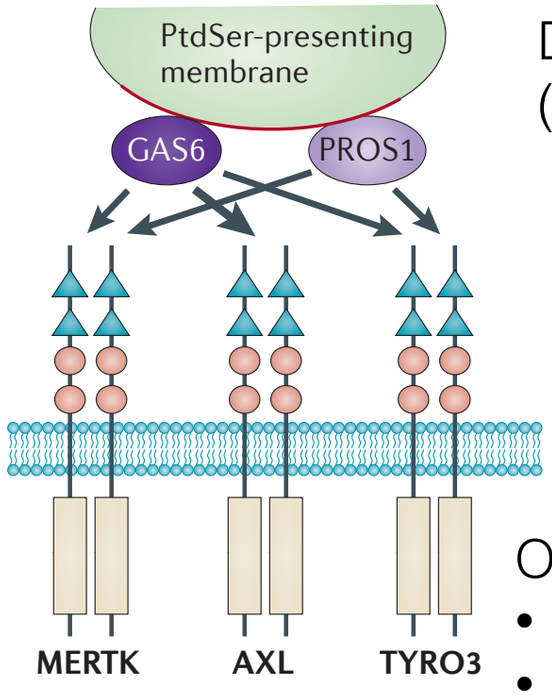

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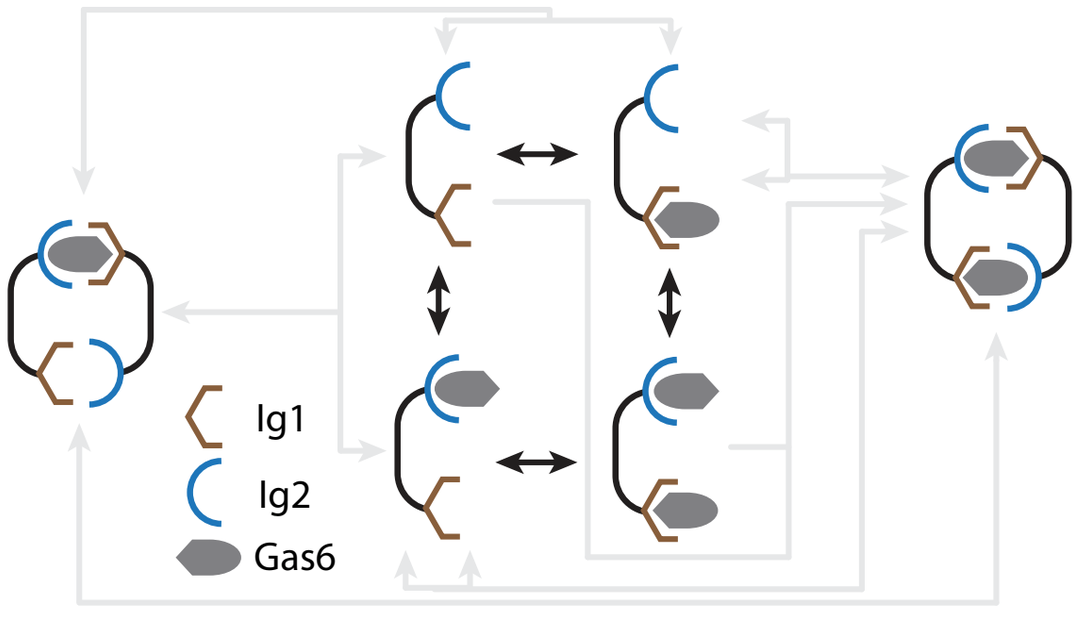

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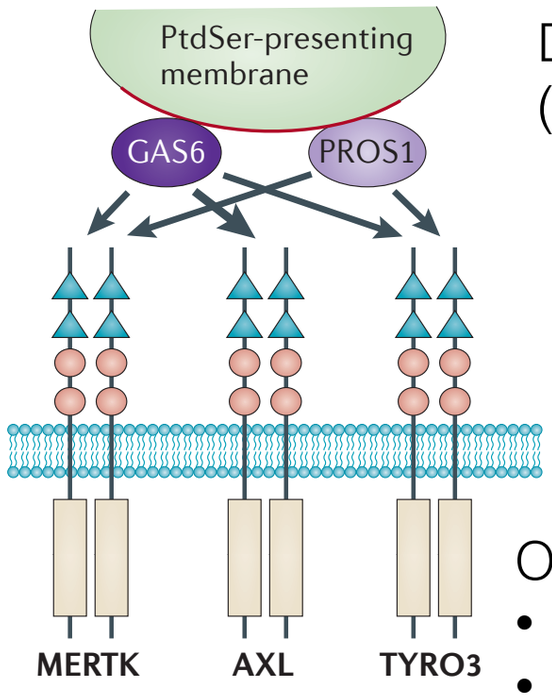

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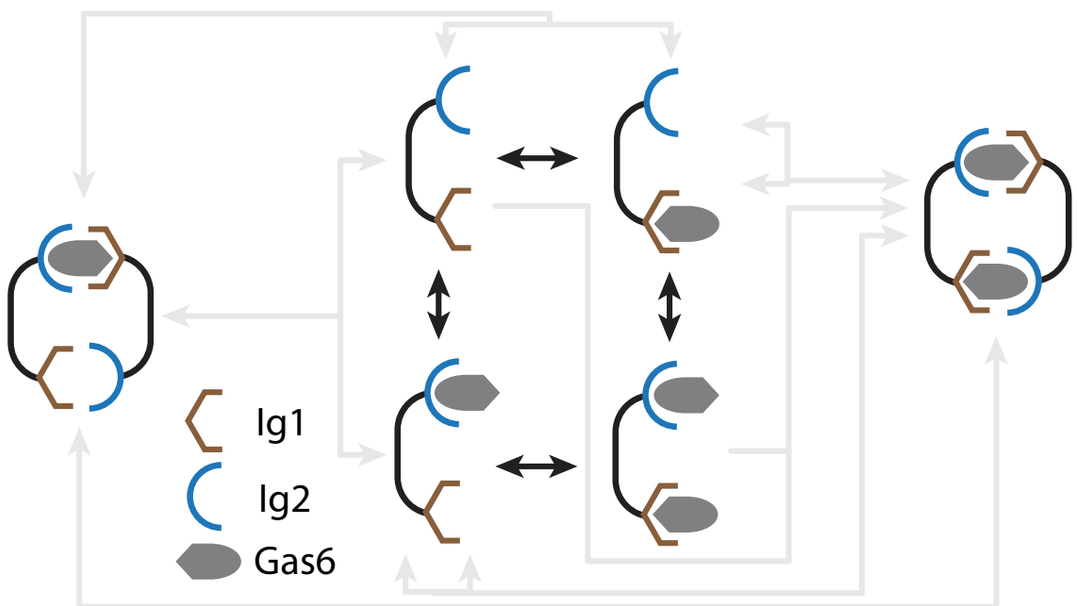

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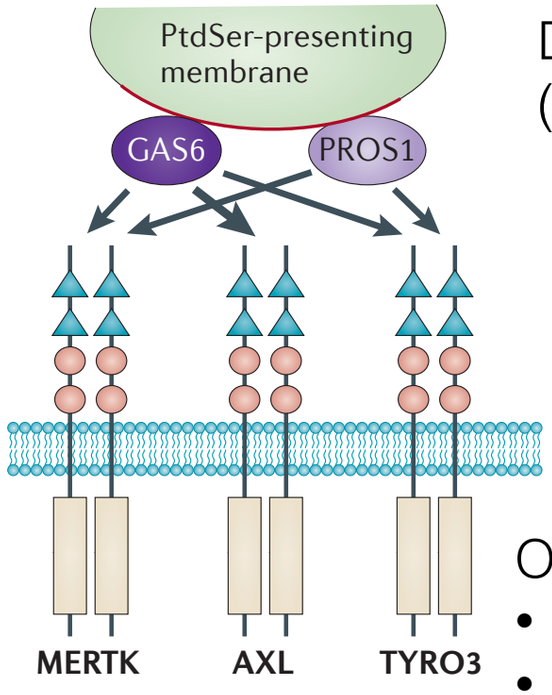

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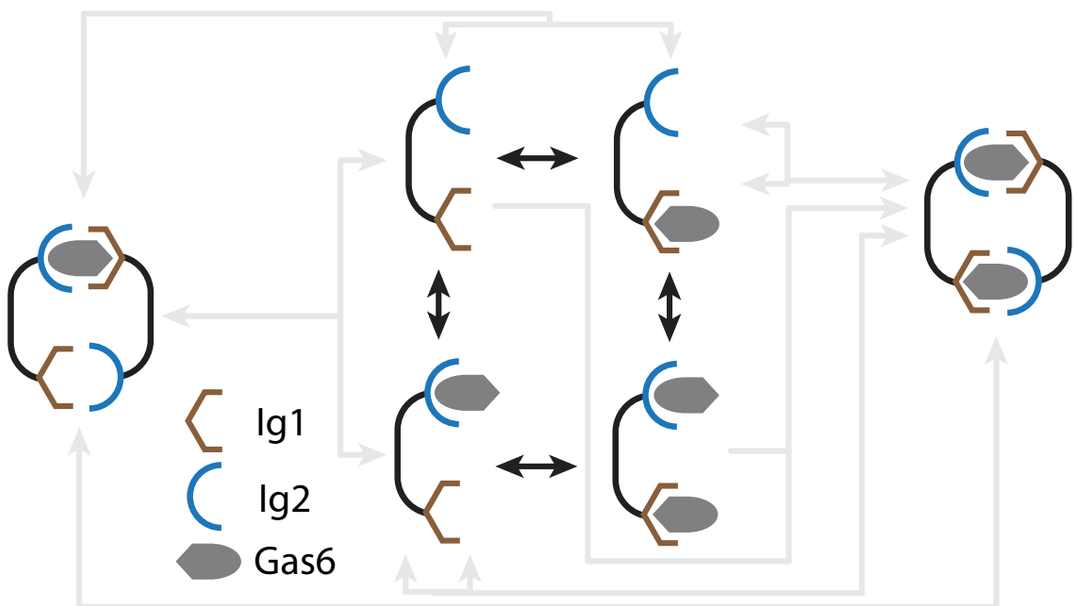

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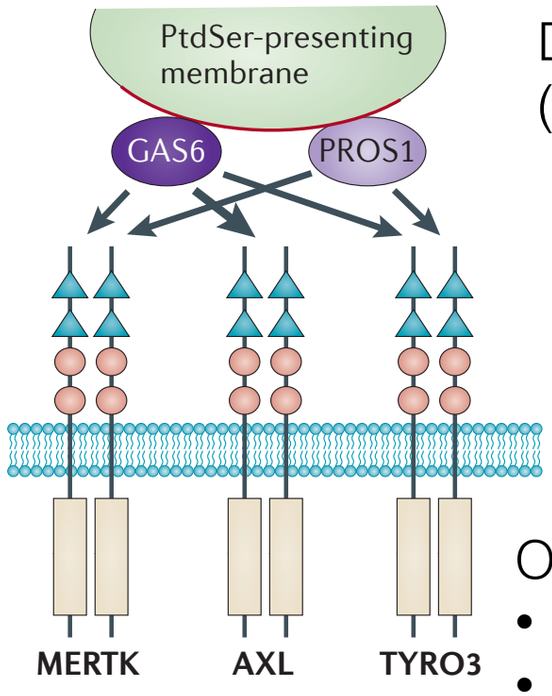

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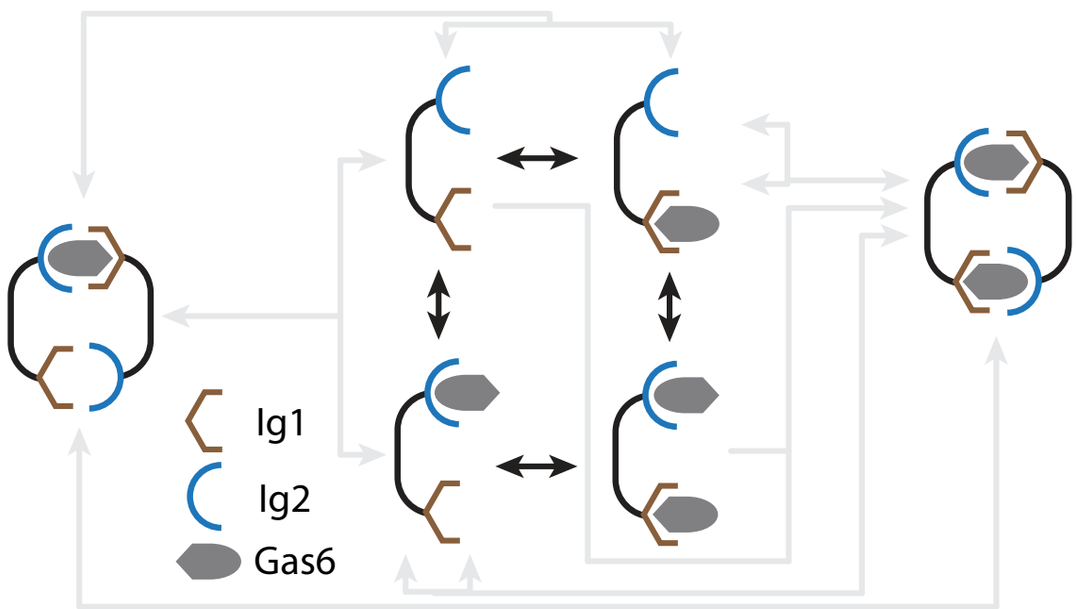

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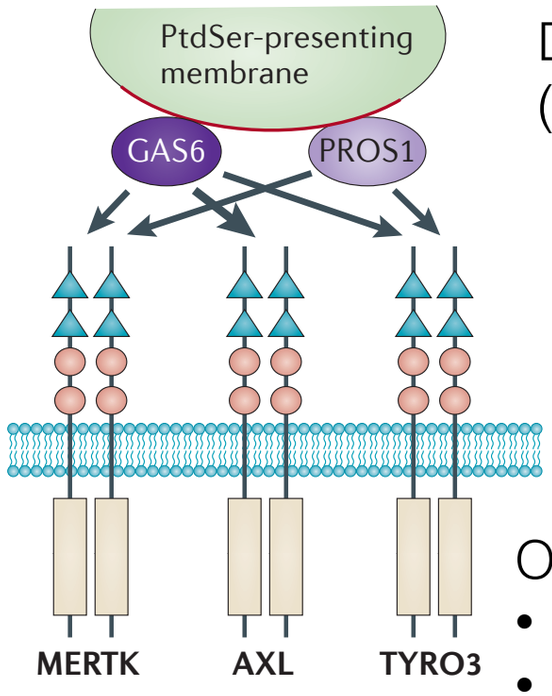

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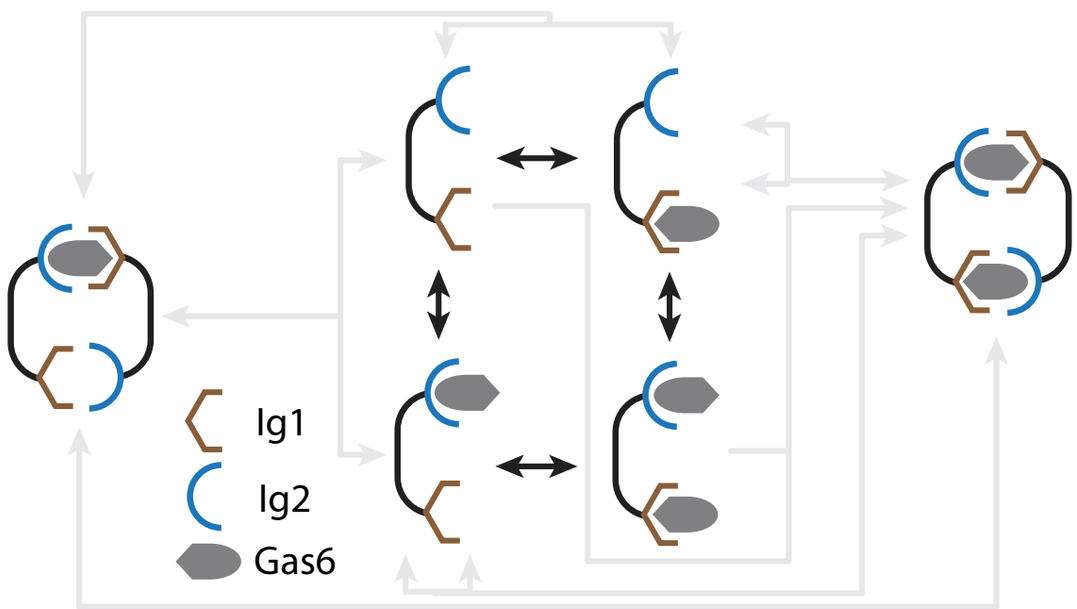

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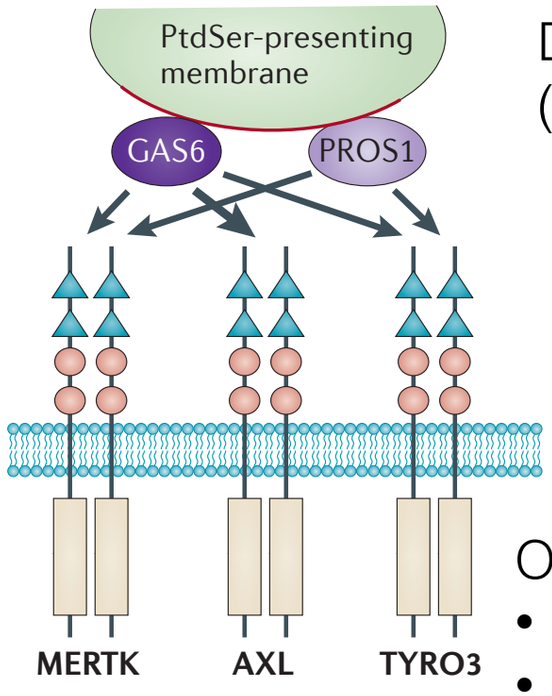

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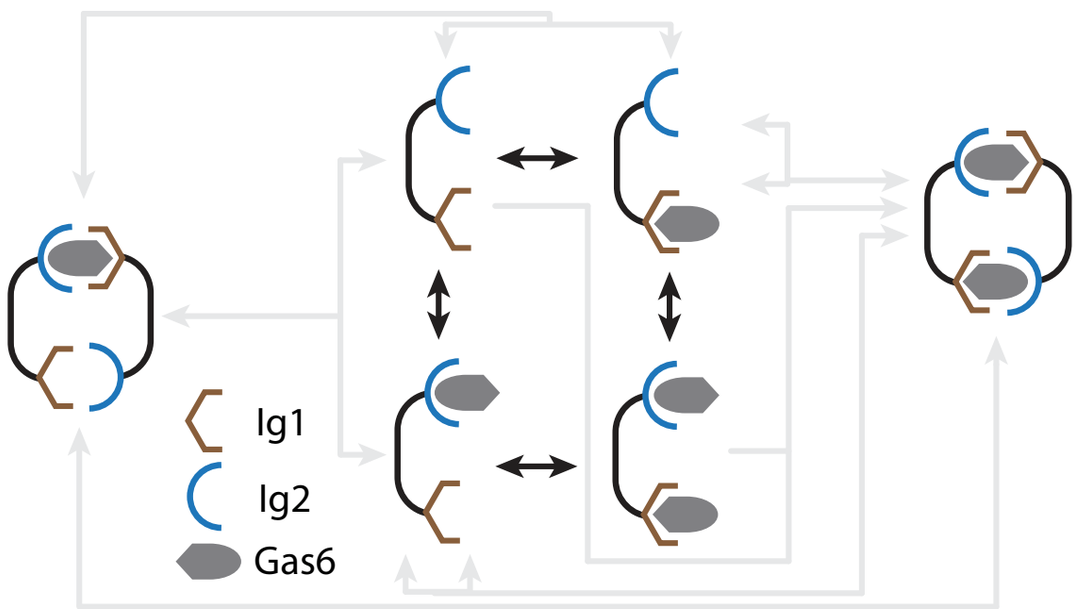

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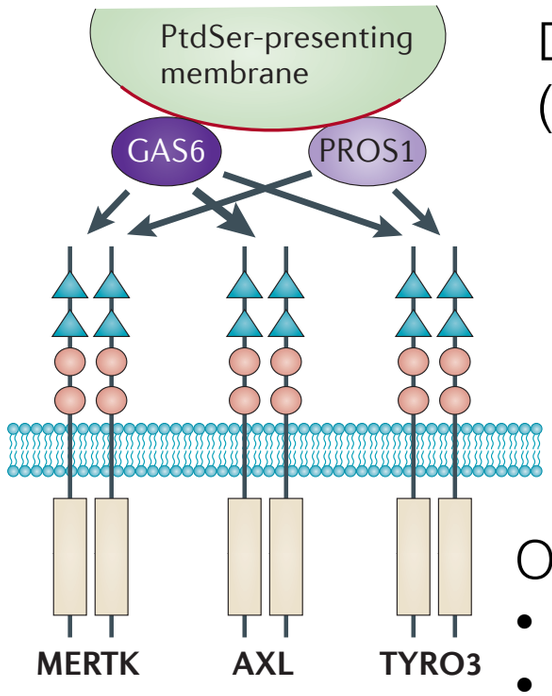

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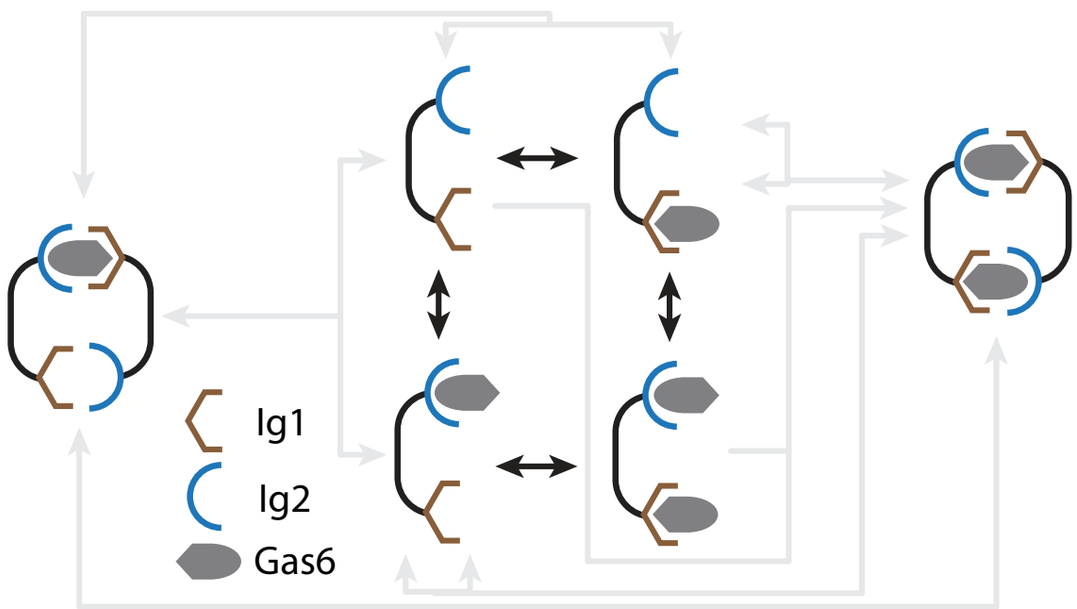

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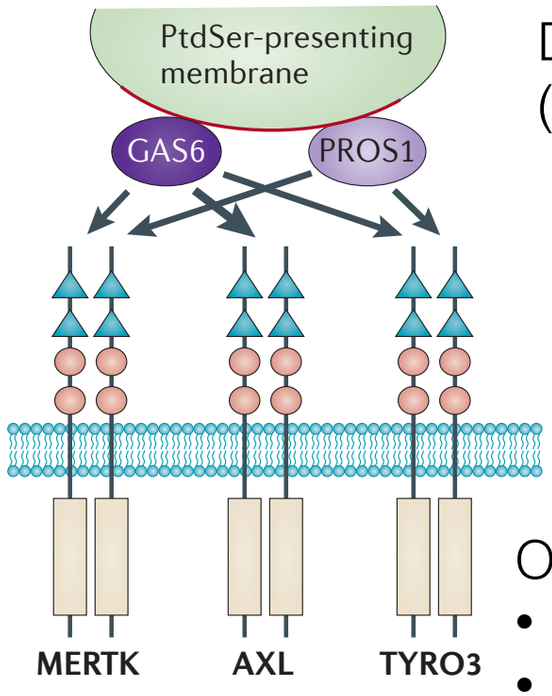

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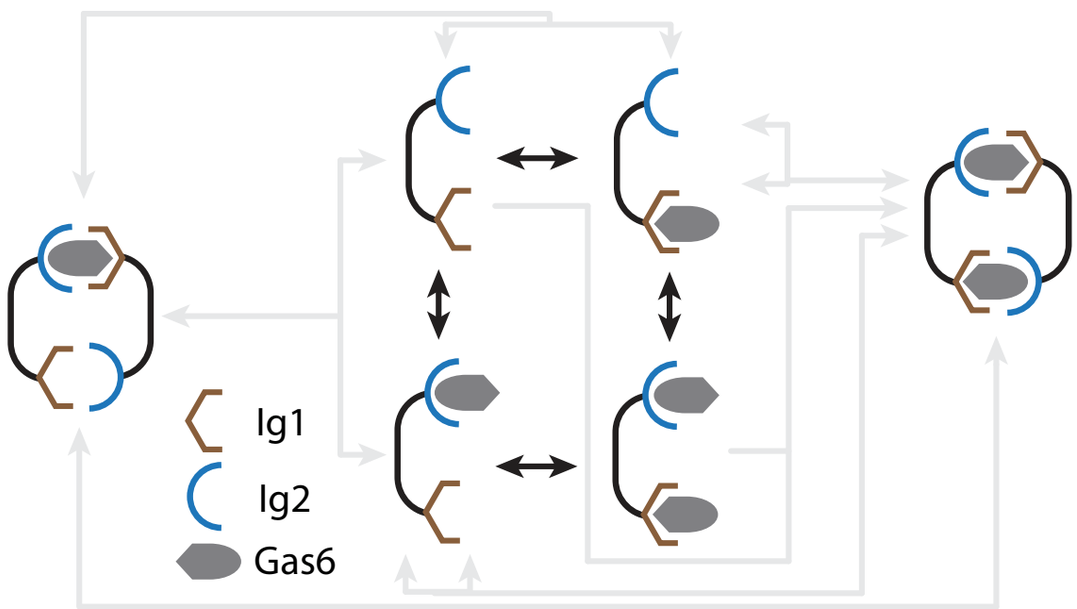

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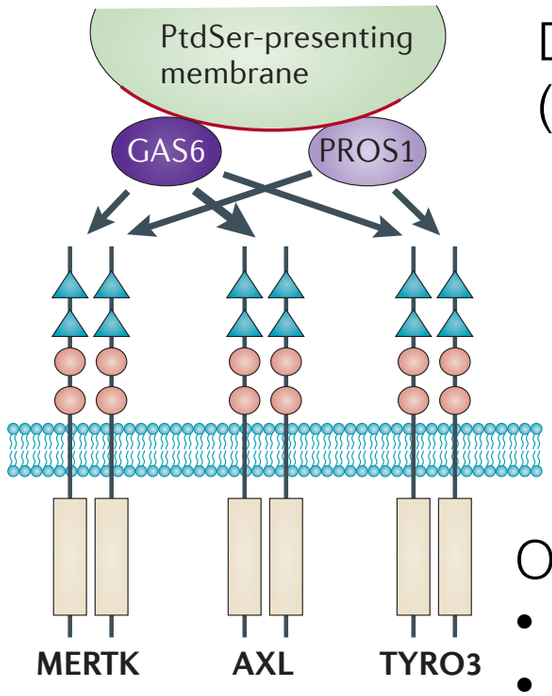

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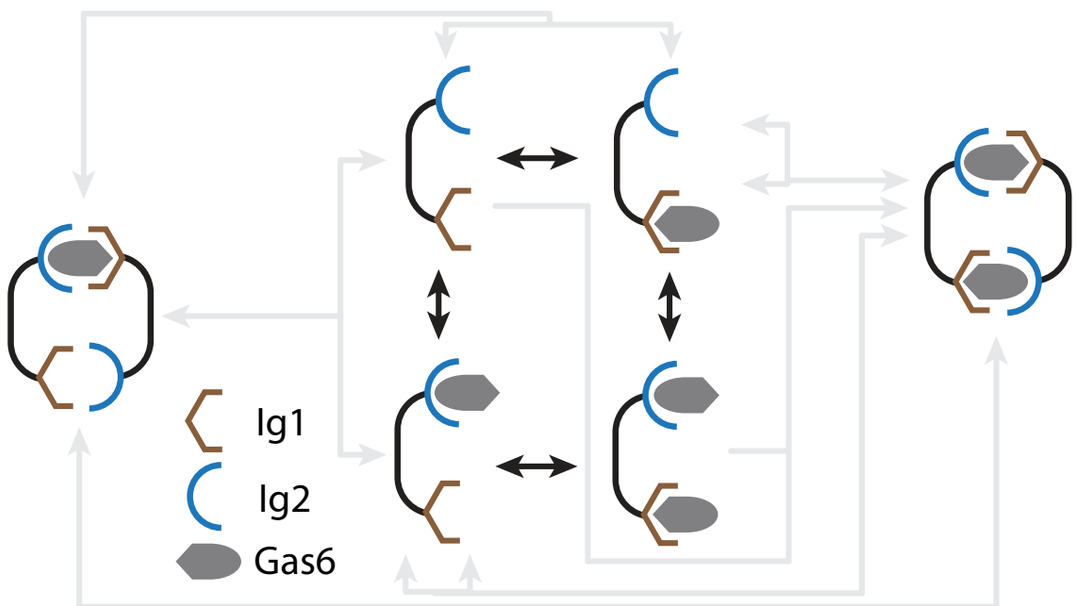

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Other areas of application: FcγRs, FGFRs, pattern receptors (e.g. TLRs), RET, type I interferons, etc.

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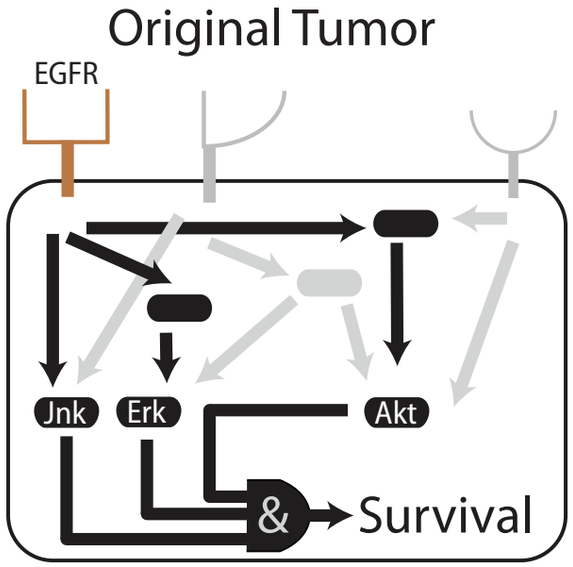

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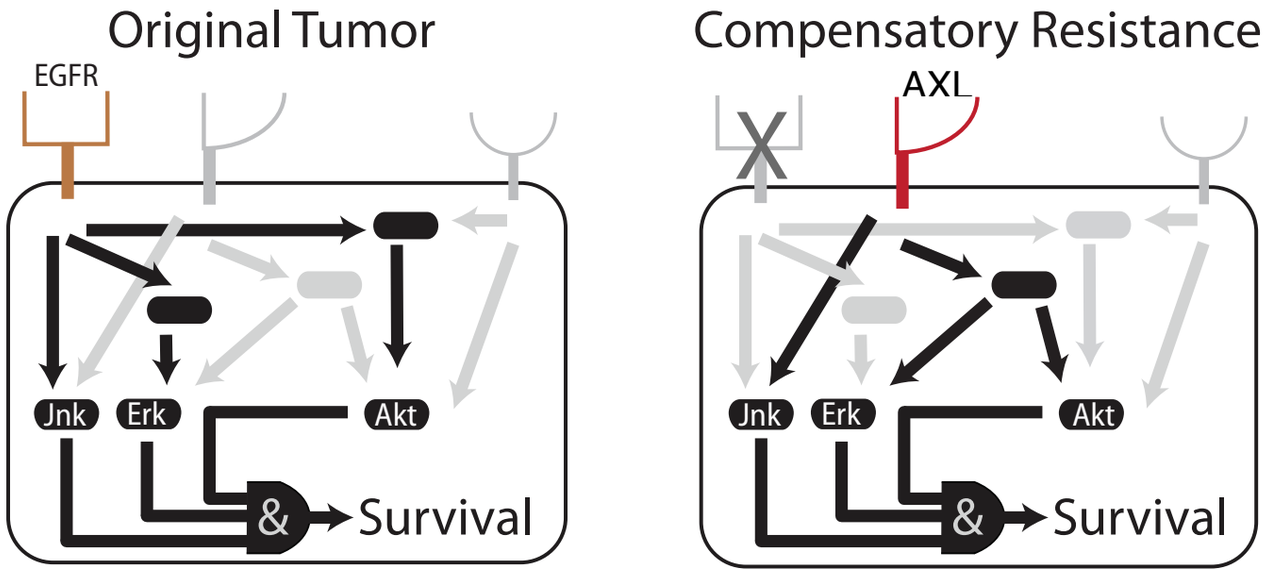

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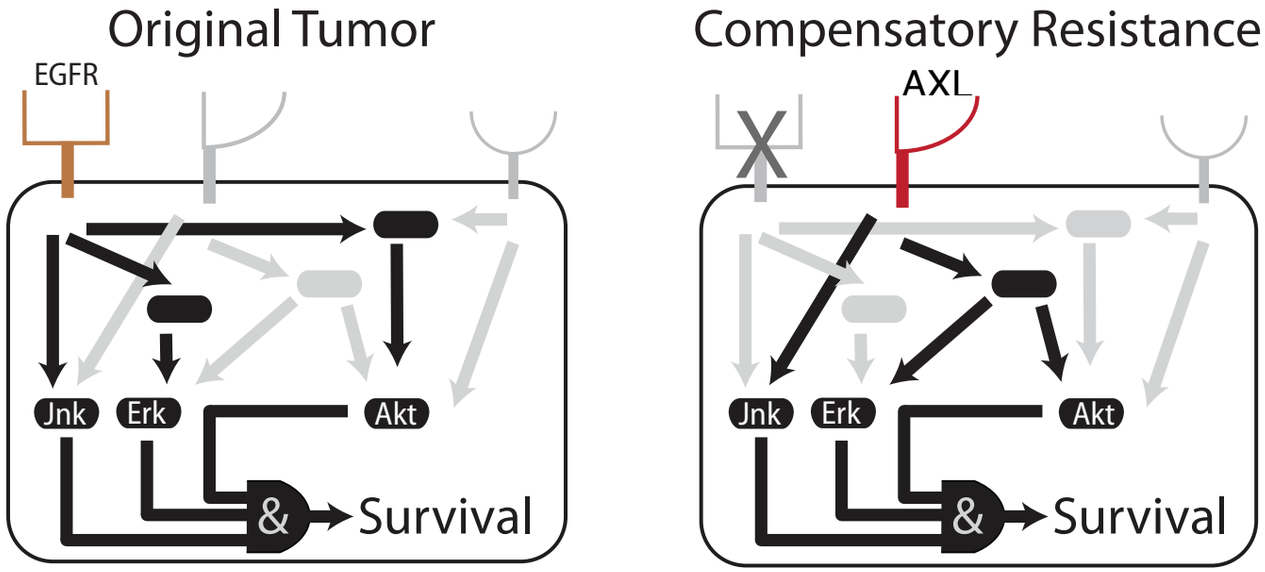

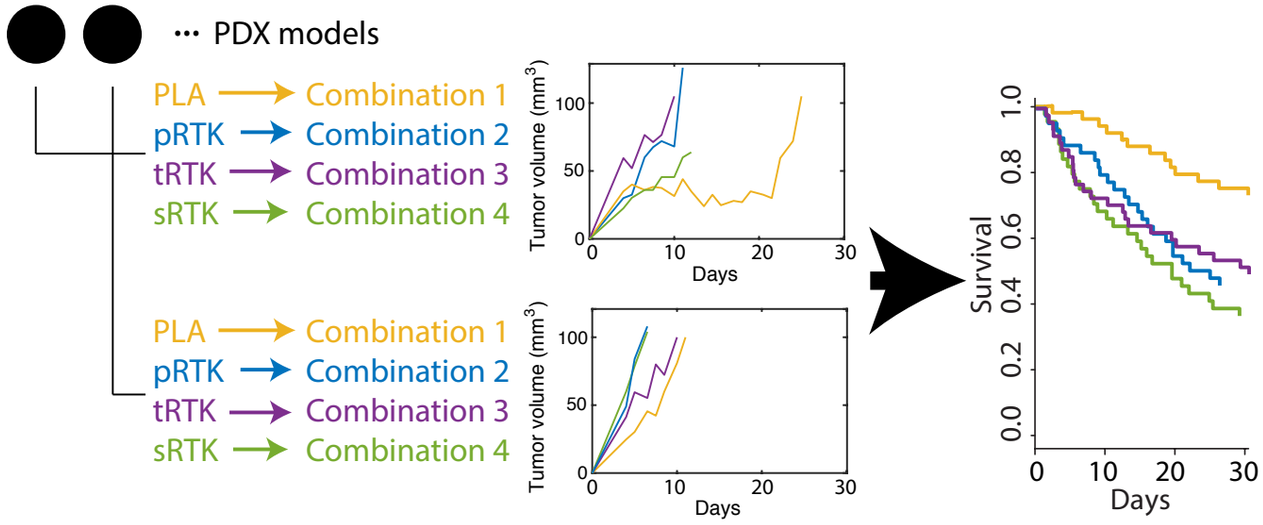

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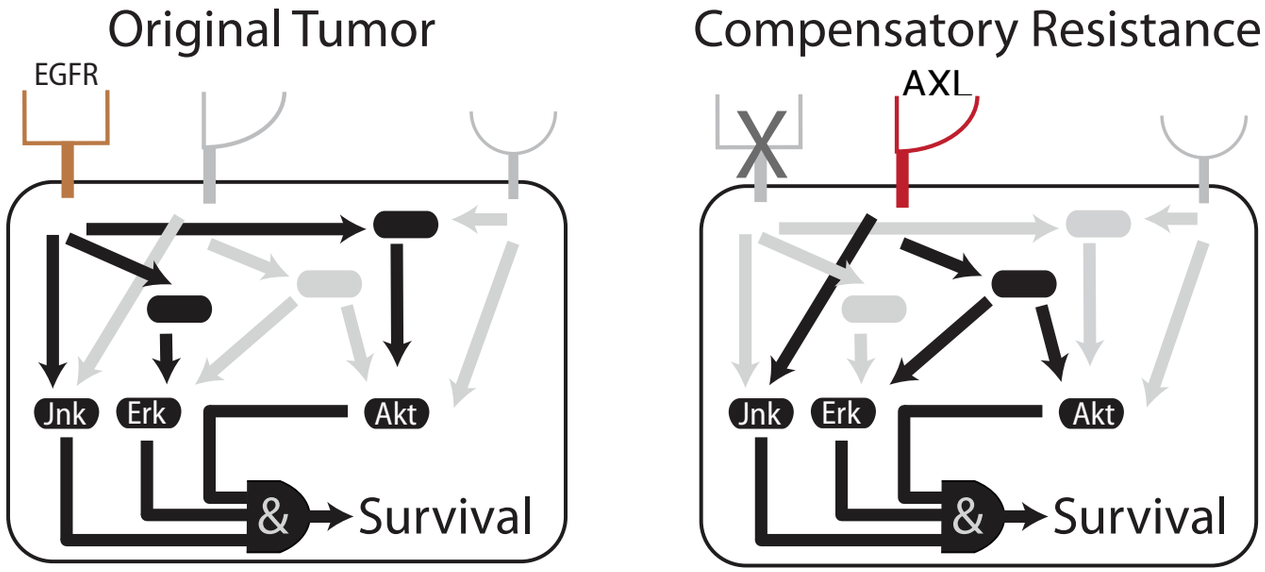

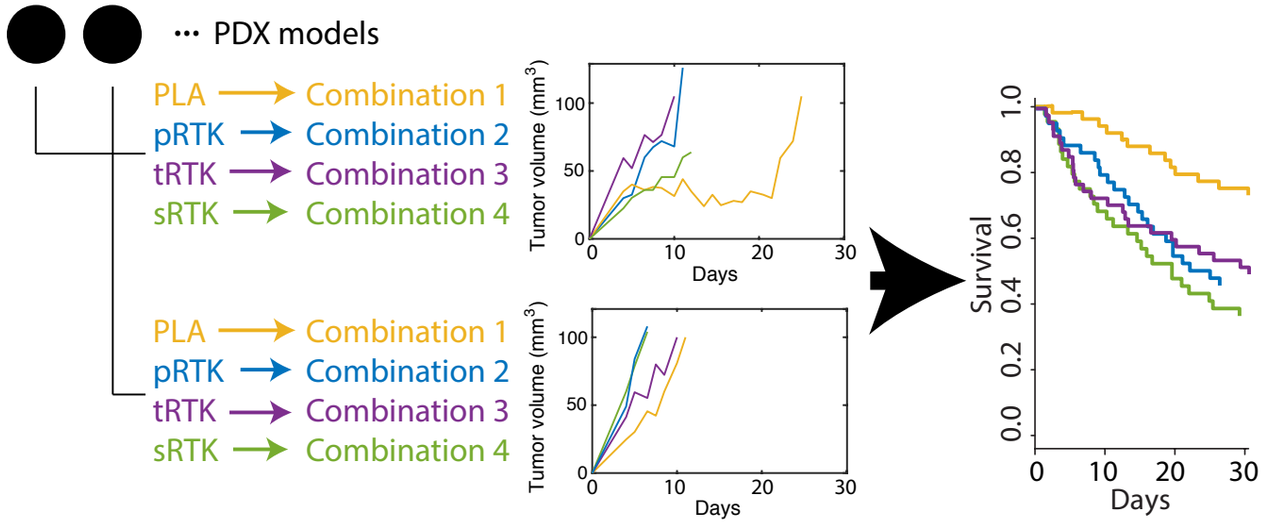

Outcomes:

- Map resistance signaling
- Detailed AXL signaling
- Precise combination therapy identification

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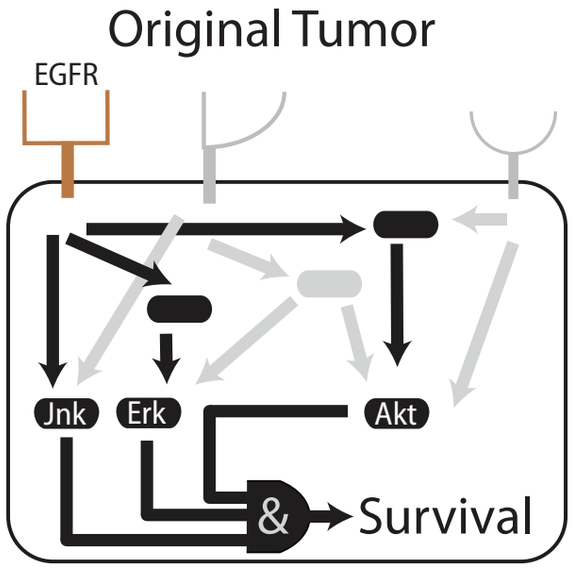

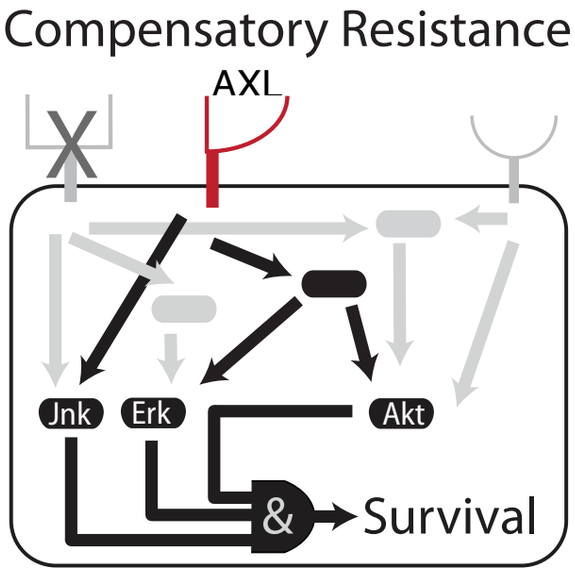

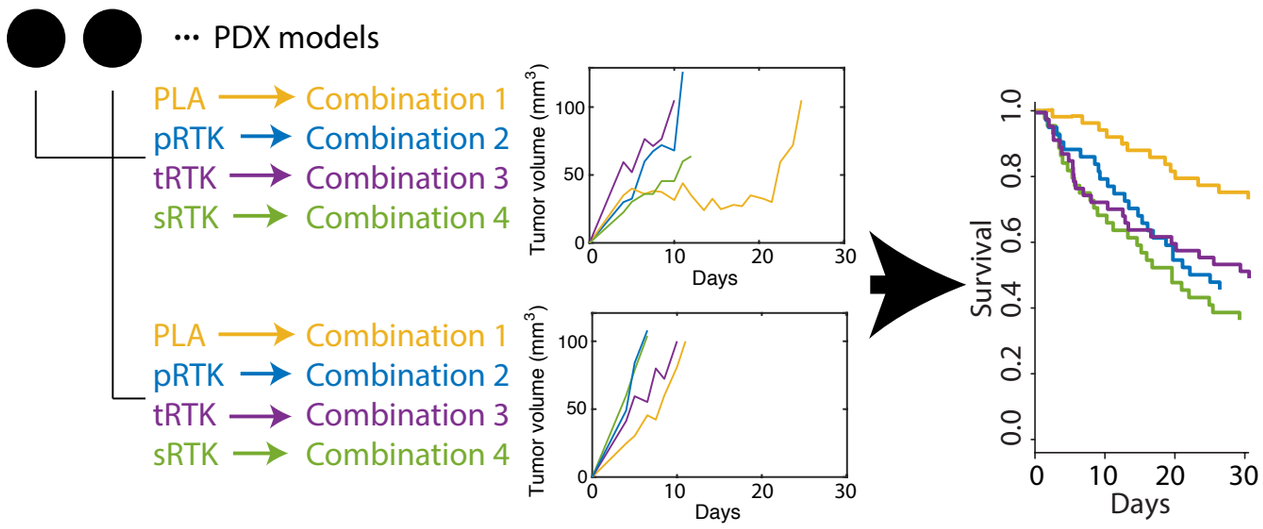

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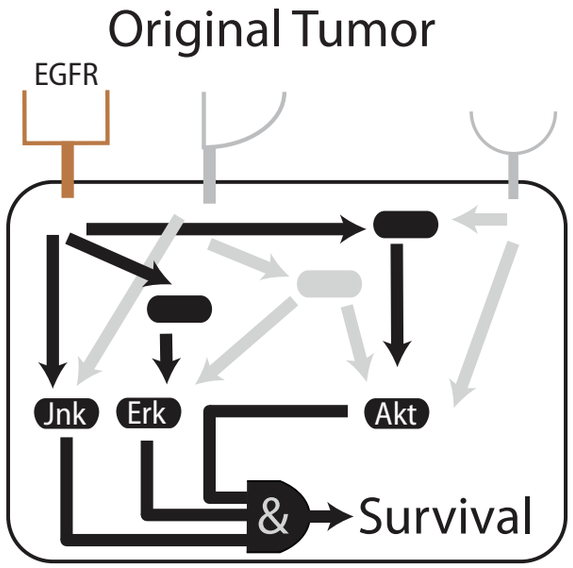

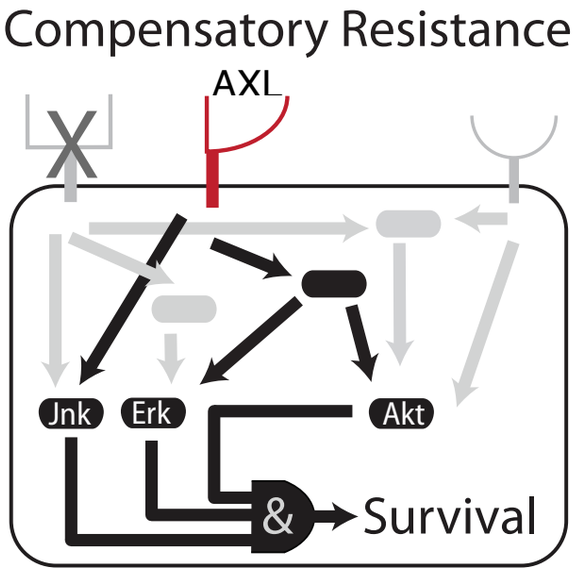

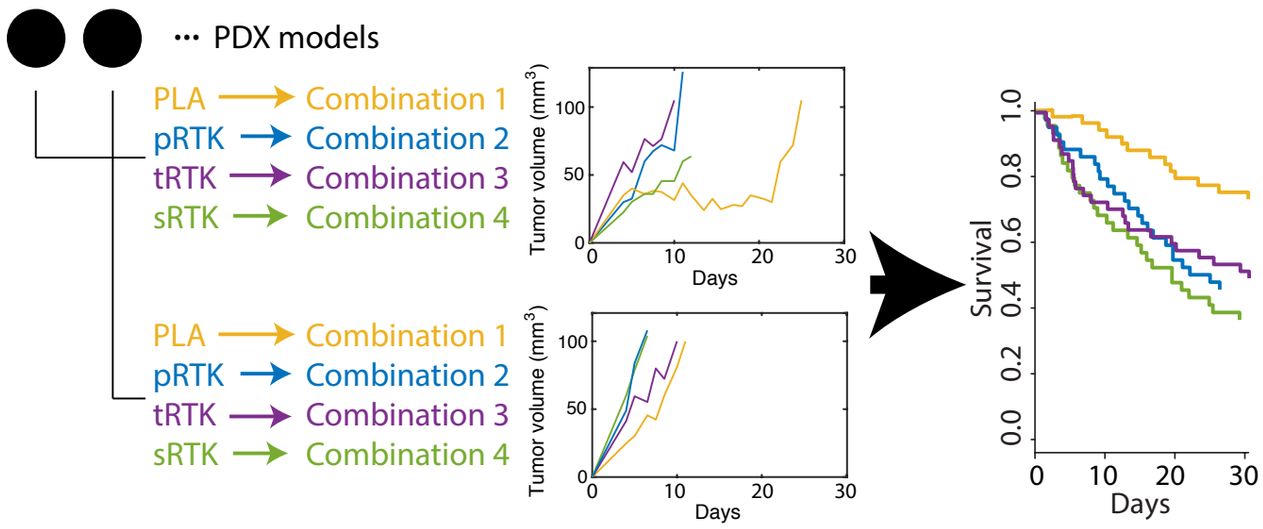

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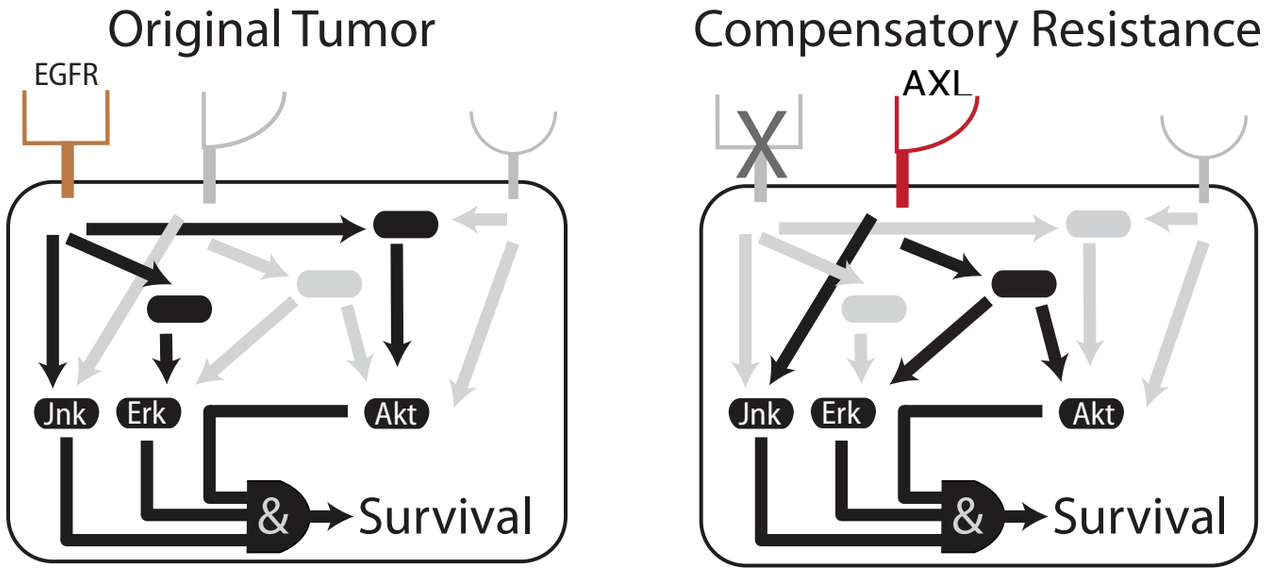

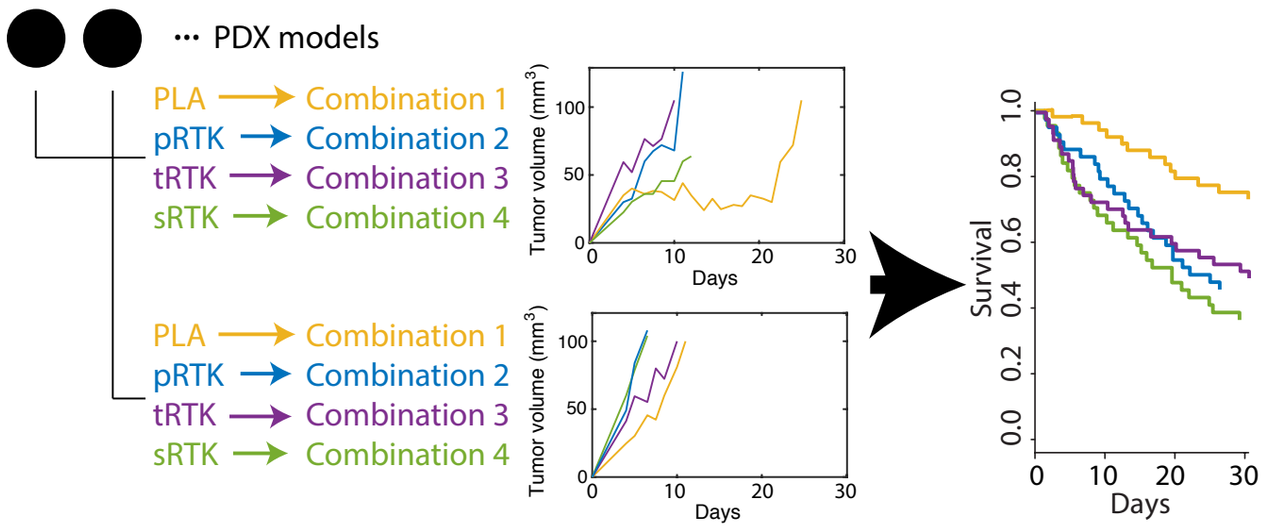

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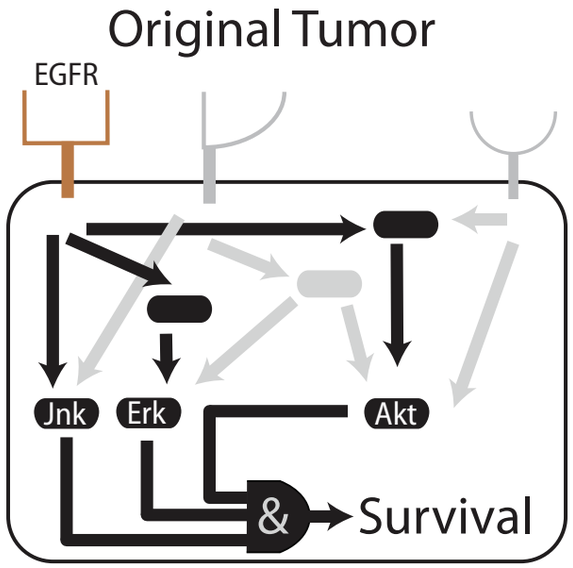

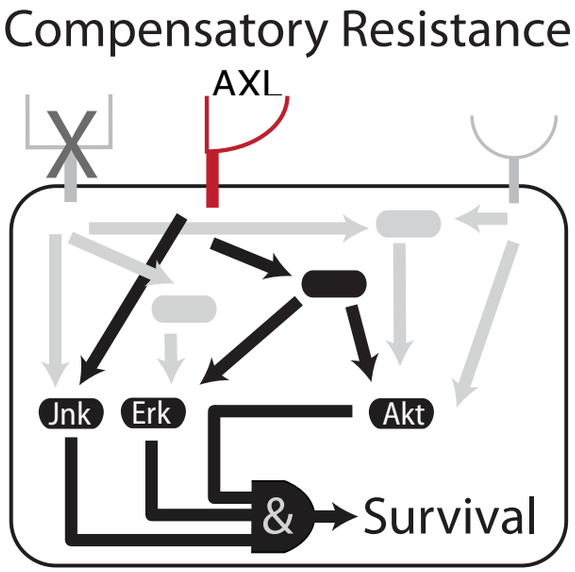

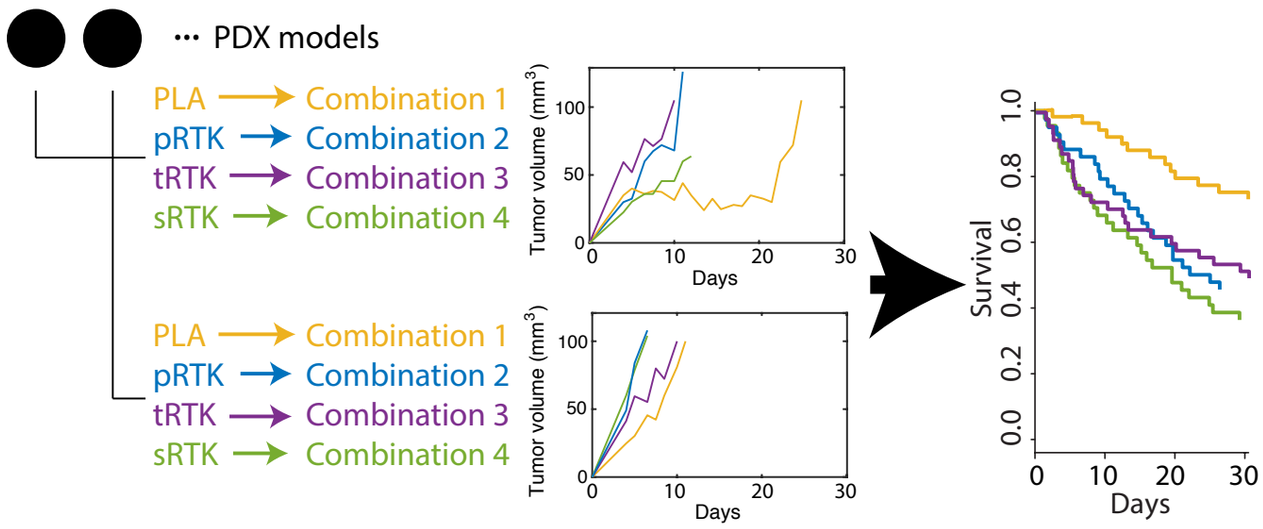

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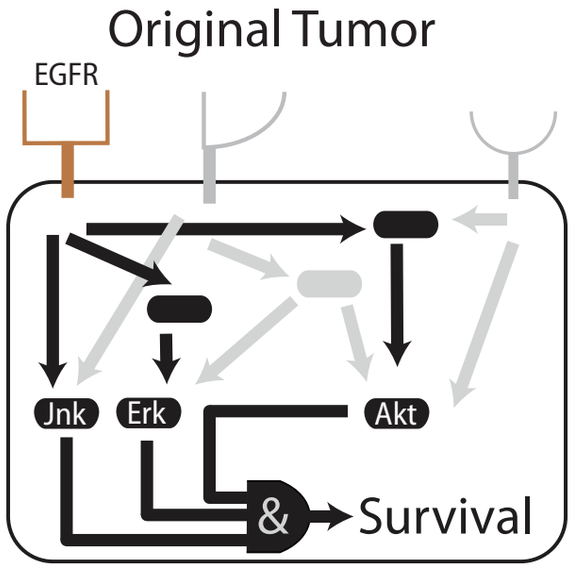

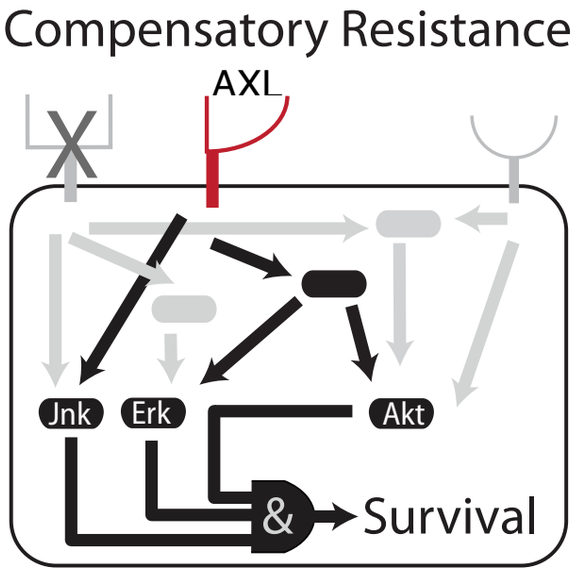

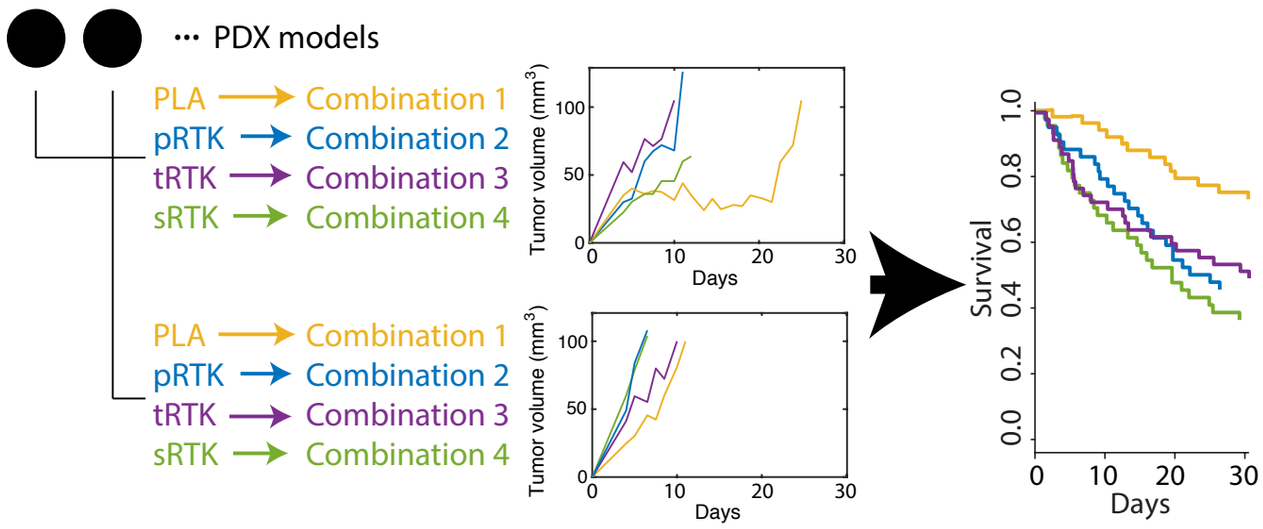

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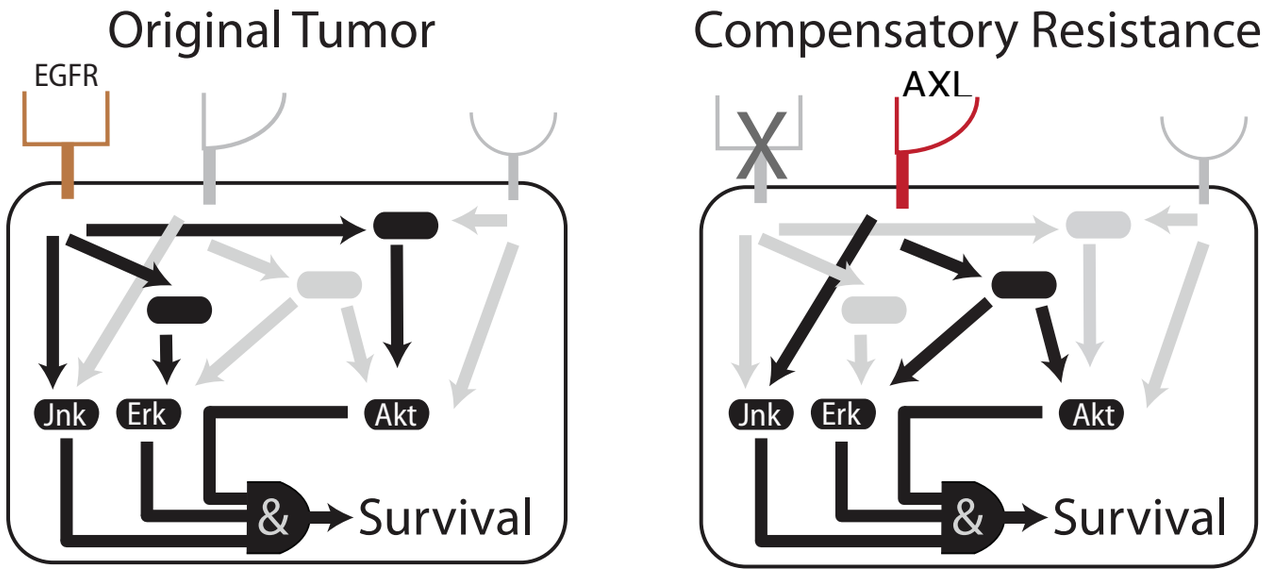

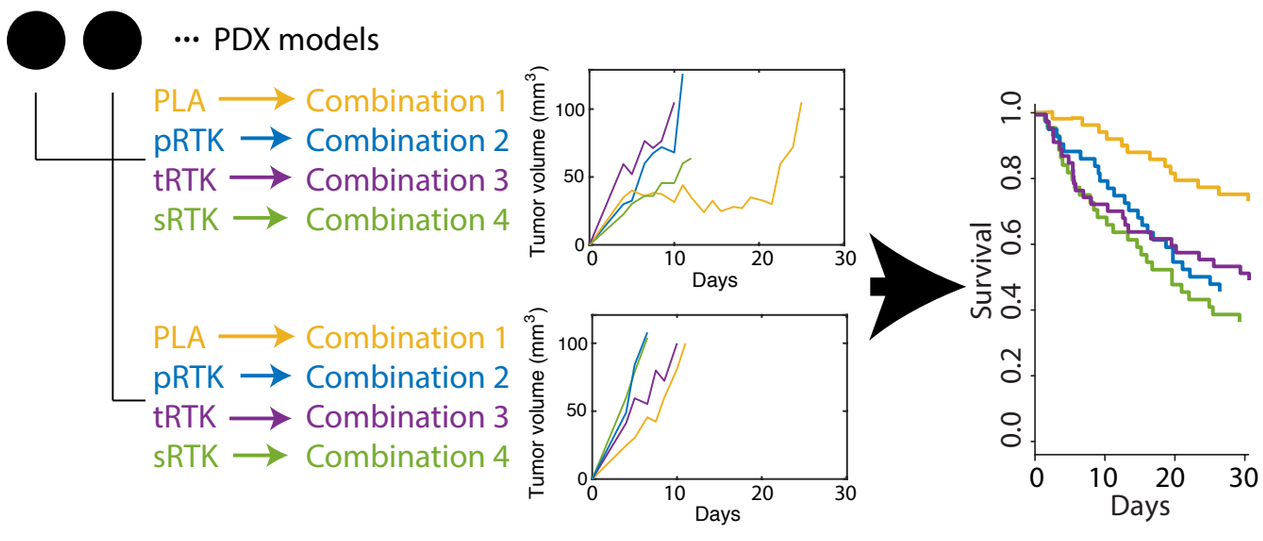

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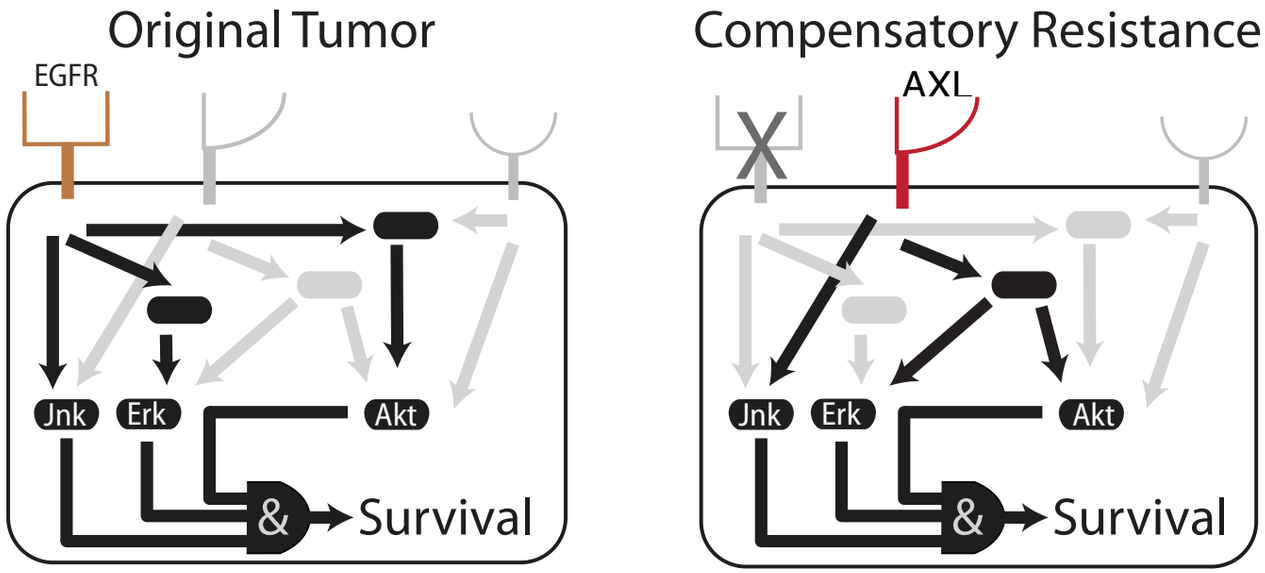

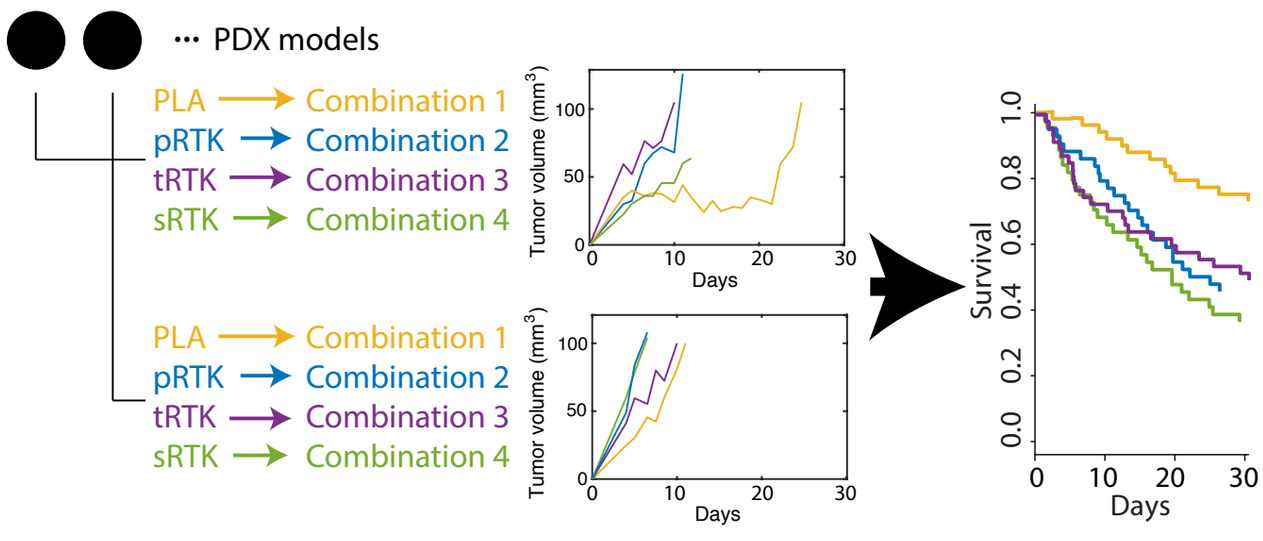

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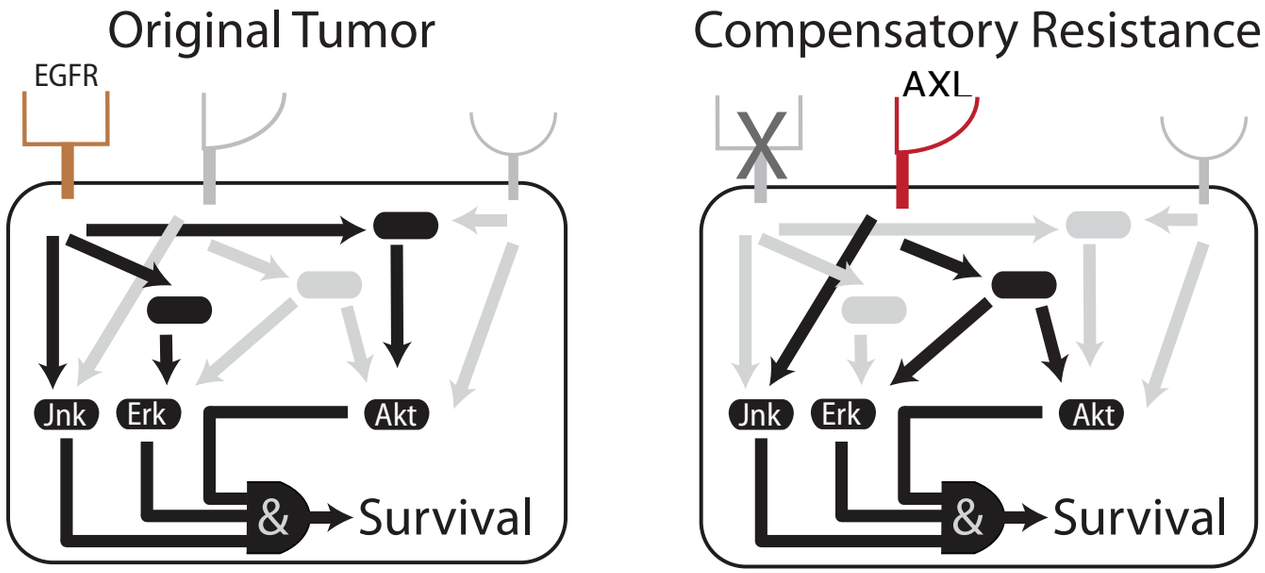

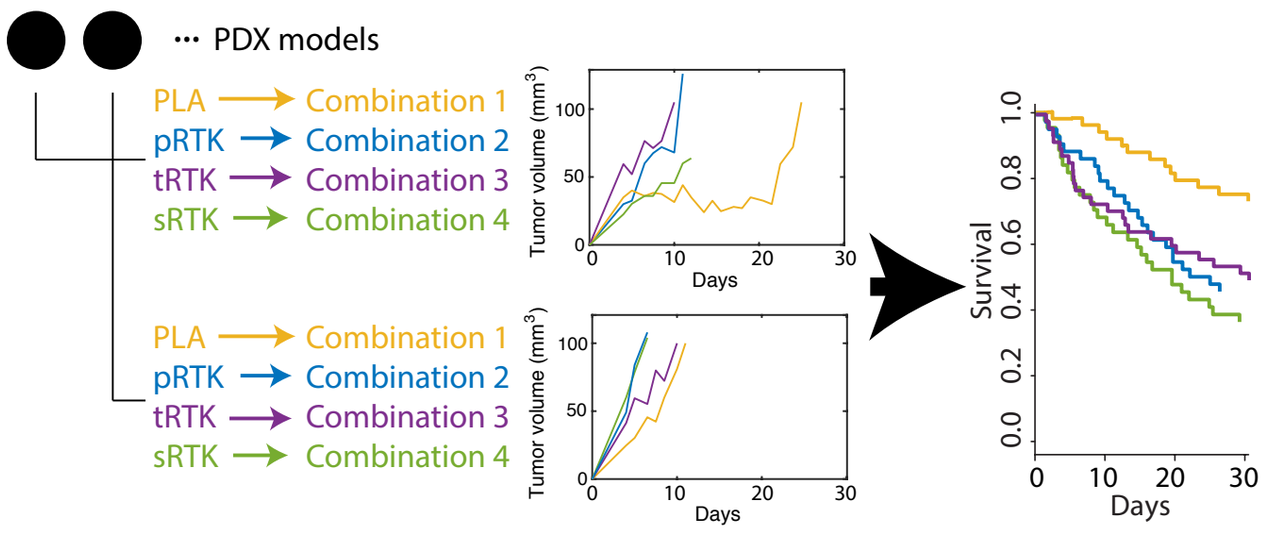

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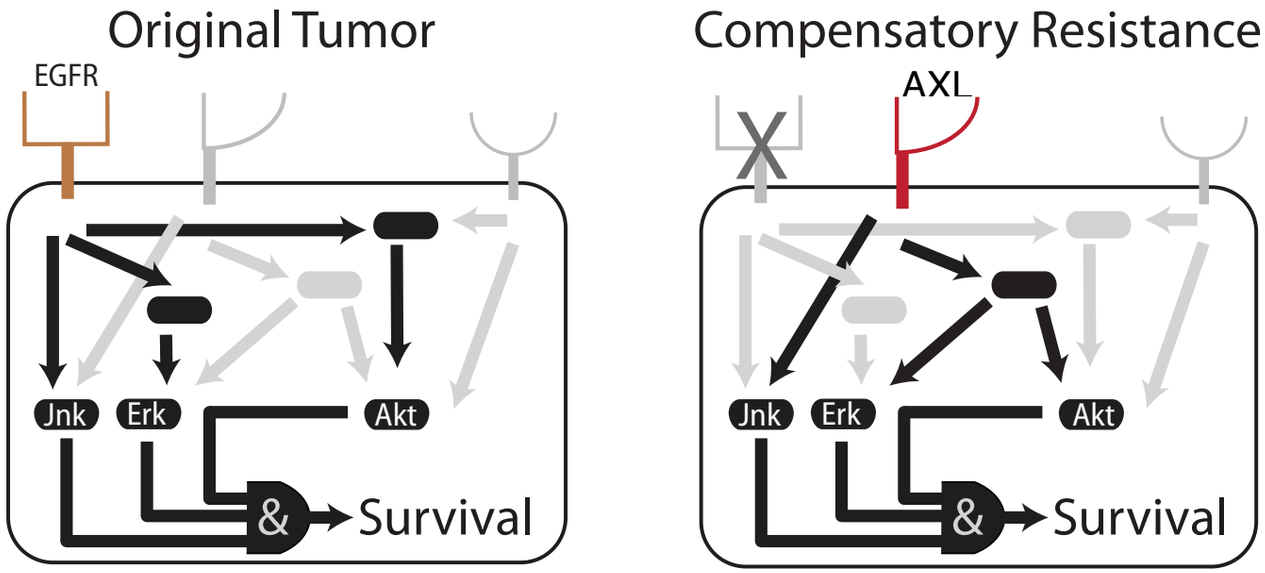

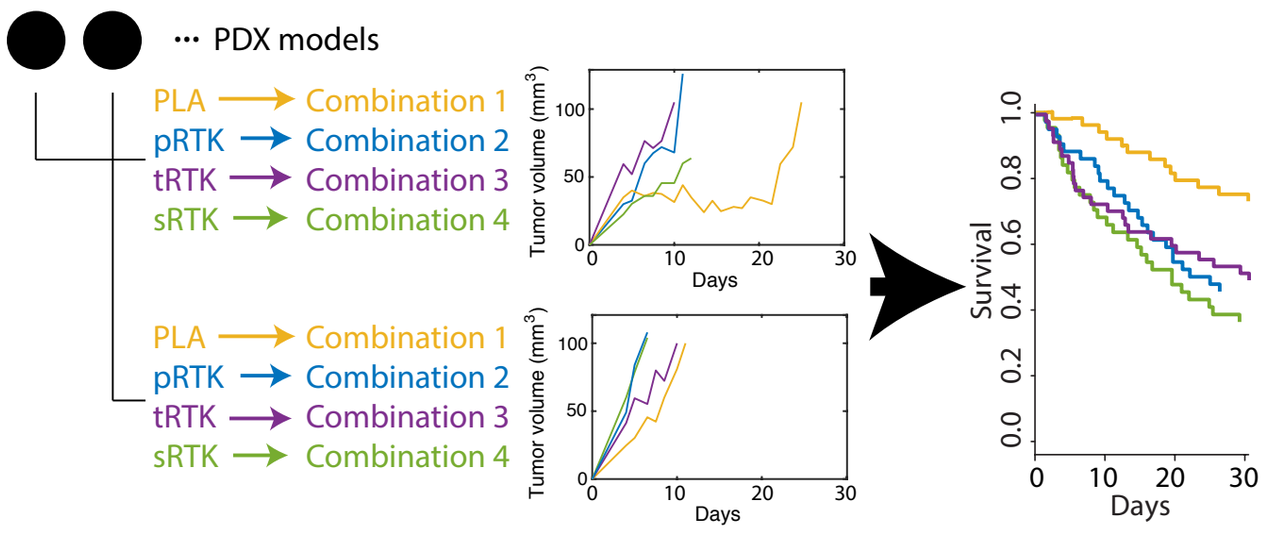

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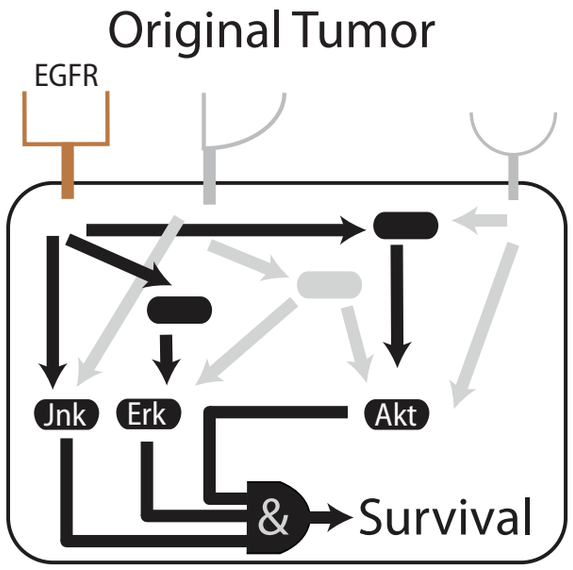

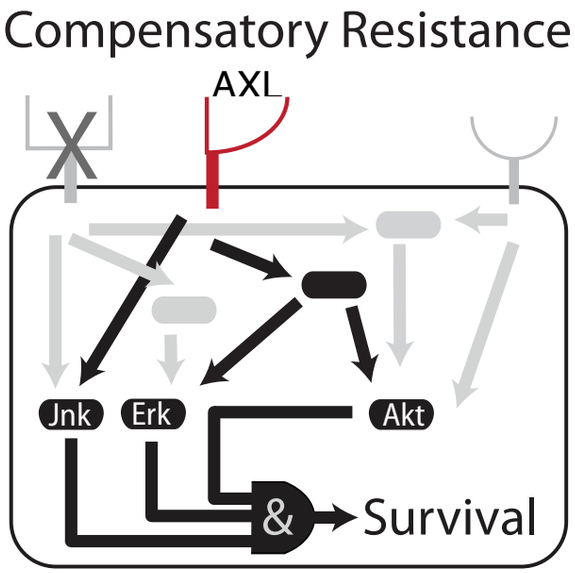

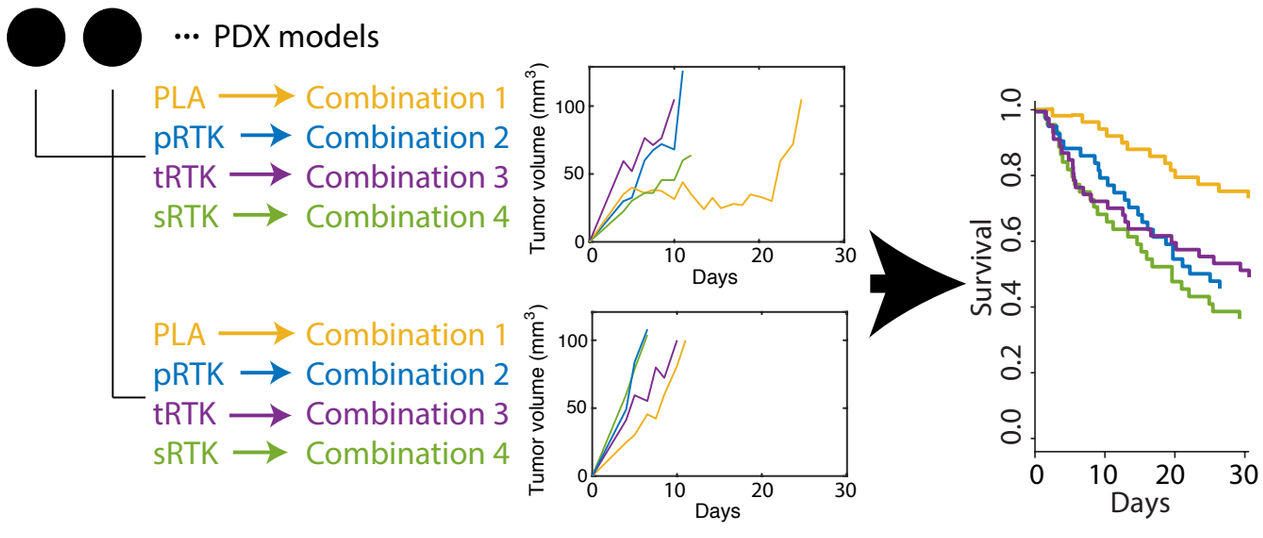

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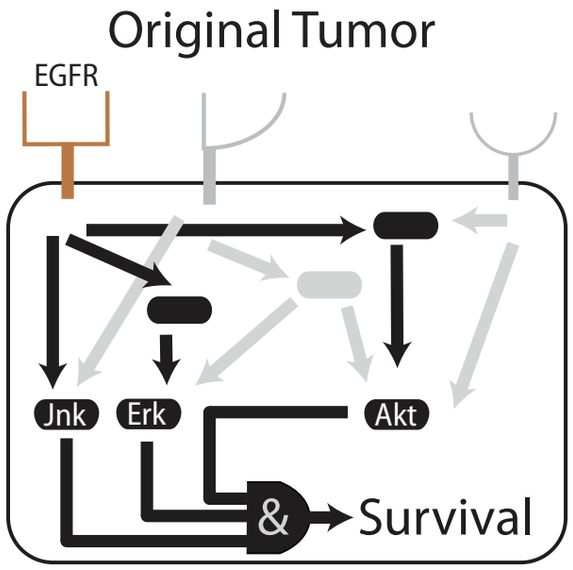

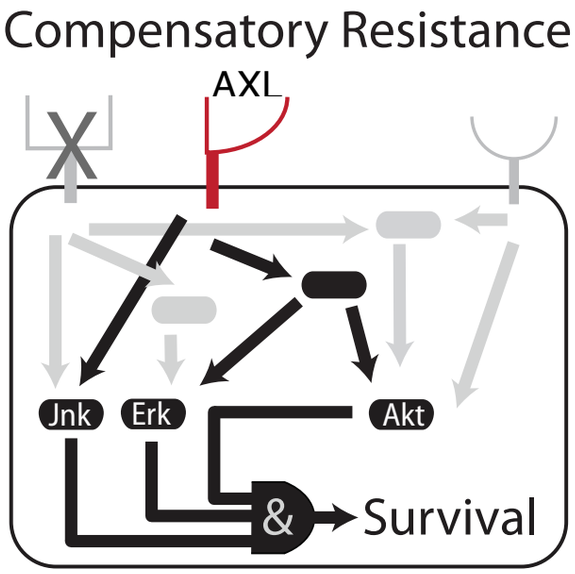

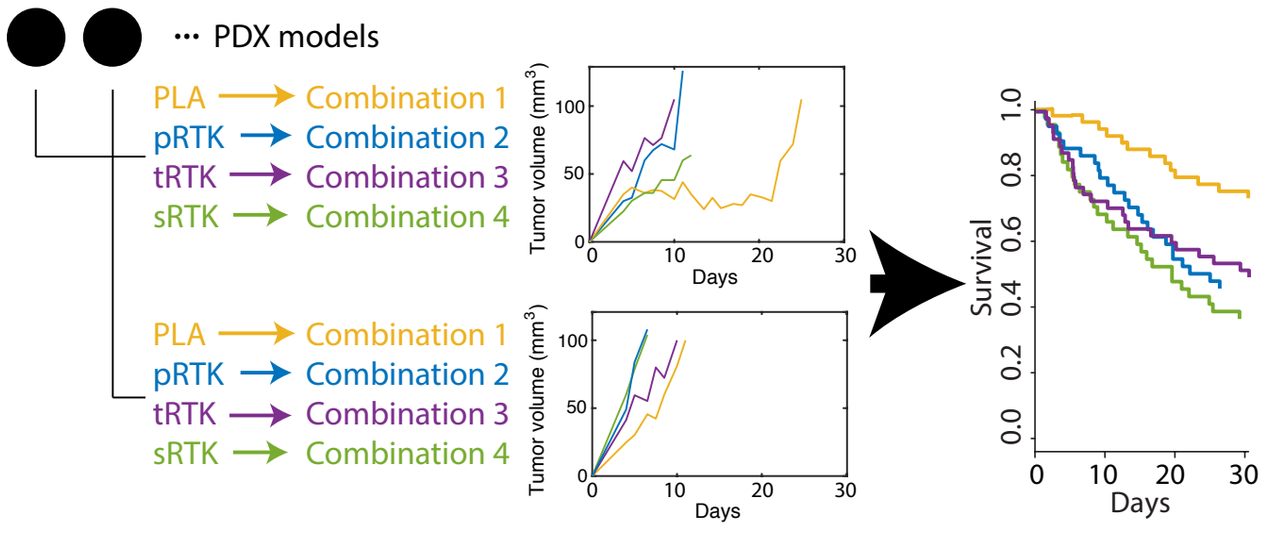

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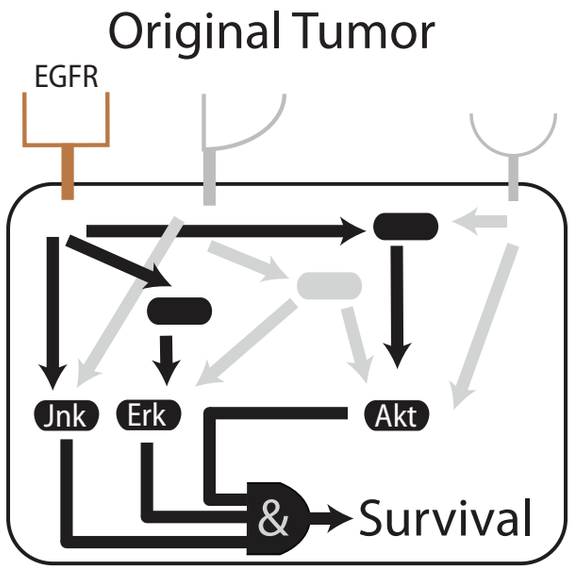

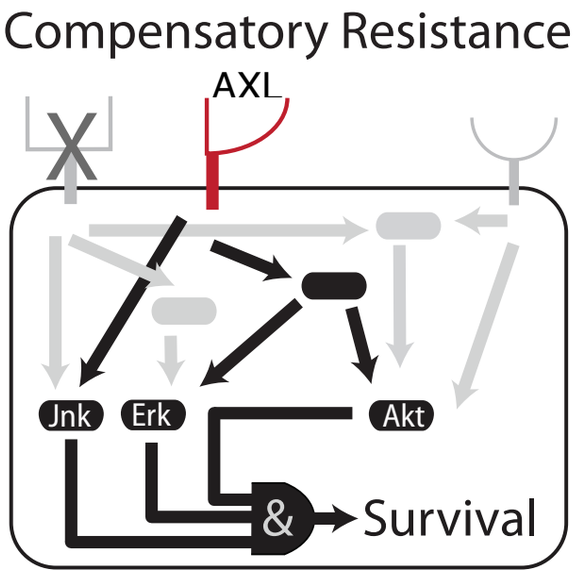

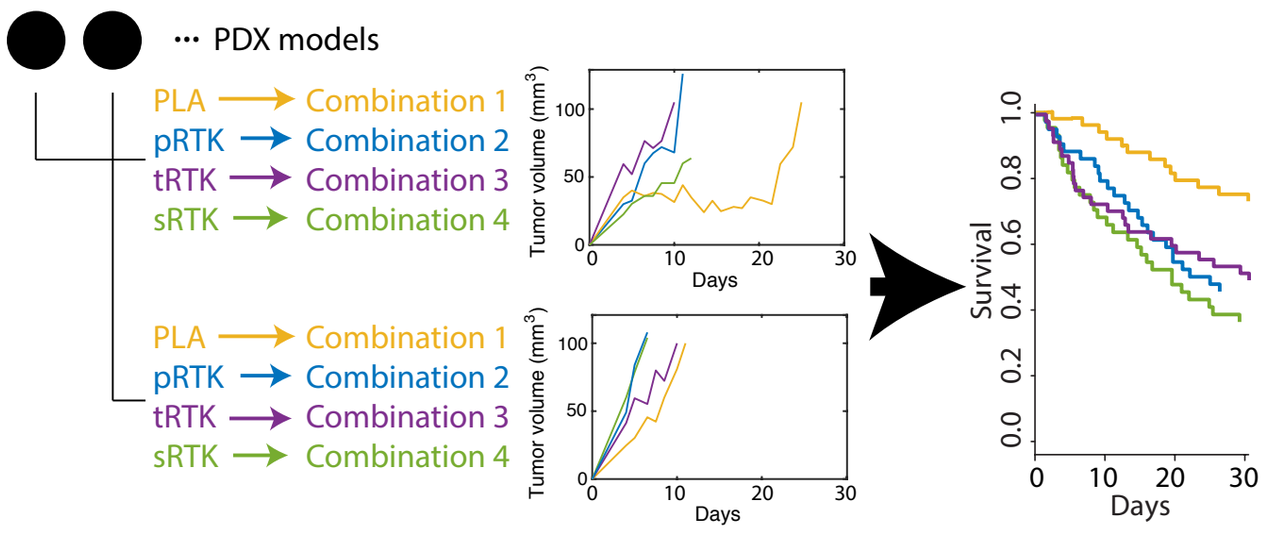

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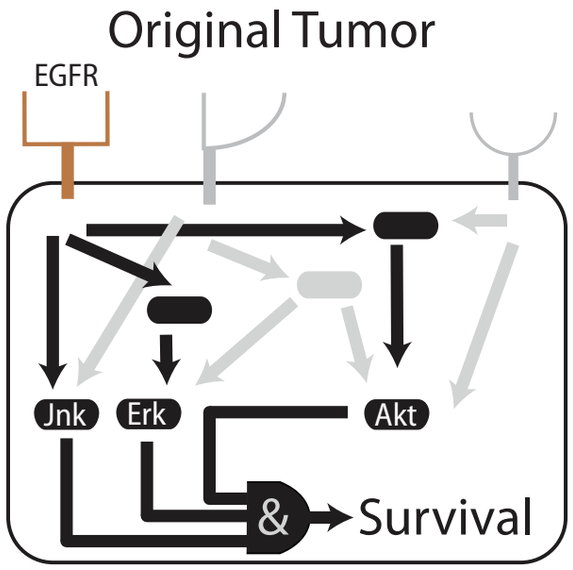

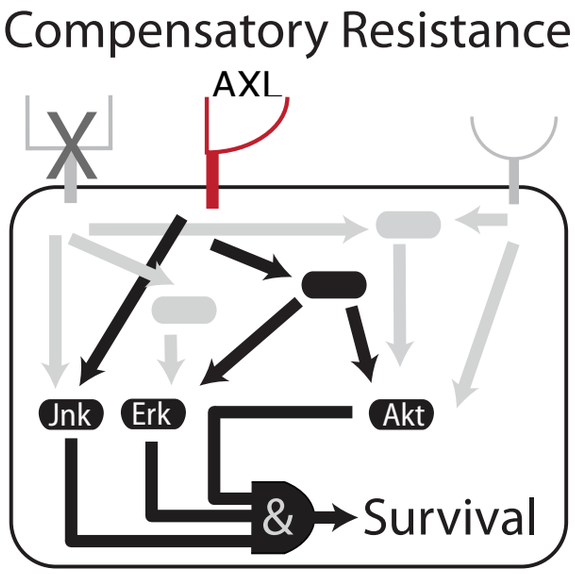

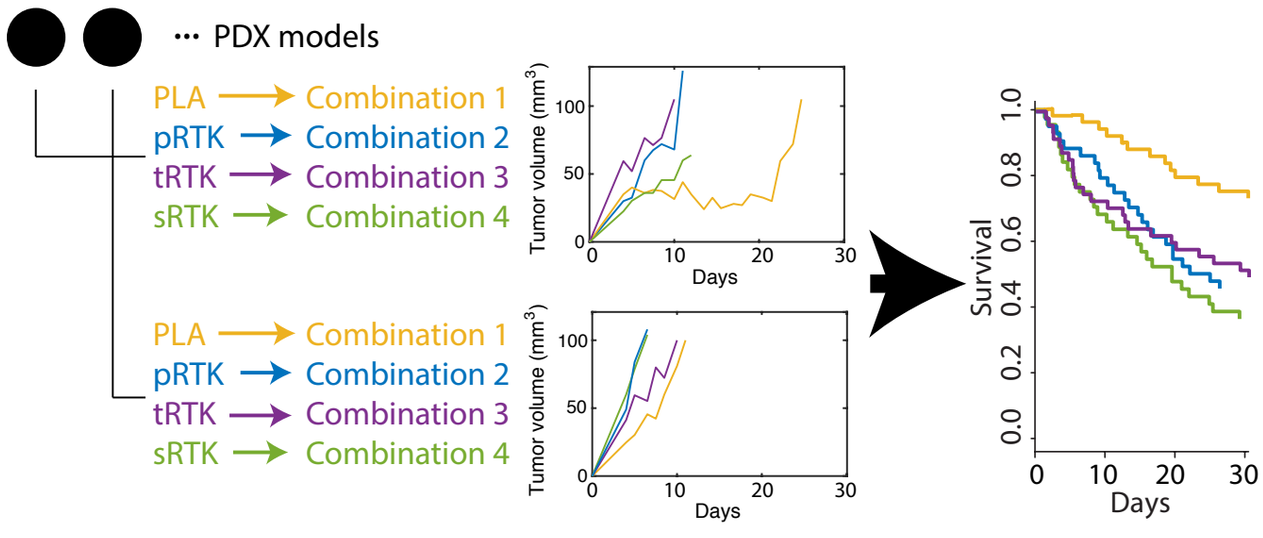

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- Identify drug combinations (xenograft samples)
- Test combination predictions

Timeline

2017/2018 | 2018/2019 | 2019/2020 | 2020/2021

Existing Funding: $320,000/yr (DP5, Brodeur, AMIGOS)

Postdoc Graduate Student Undergraduate

Research Focus 1

Submitted Funding Applications: Burroughs Wellcome CASI (current finalist)

Aim 1: Measure Binding

Aim 2: Model Assembly/Validation

Aim 3: *In vivo* Application

Existing postdoc

FcγR models

Research Focus 2

Submitted Funding Application: NCI Cancer Systems Biology Consortium U01

Aim 1: Identify essential bypass signaling

Aim 2: Identify driving RTK-adapter interactions

Aim 3: Apply PLA to predict drug combinations

Existing postdoc

Growth models with apoptosis/necroptosis

Teaching Plans

Existing courses to which I could immediately contribute:

Undergraduate	**Graduate**
BE 100: Bioengineering Fundamentals	BE 295E - Seminar: Research Topics in BE –
BE 110: Biotransport and Bioreaction Processes	Molecular Cell BE Research
BE 167L: Bioengineering Laboratory	BE C201: Engineering Principles for Drug Delivery
BE 188 - Special Courses in BE: Cell Engineering	

Suggested course development:

Applying data-driven modeling in bioengineering

- Each week:
  - Lecture on a method
  - Discussion of paper using the method paired with experiments
  - Implementation
- Reproducible methods and tooling emphasized throughout
- Final project re-implementing a study from literature with documentation, data, testing & code
- Appropriate as upper-level undergraduate or graduate course