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Synthesis of AAK1 Inhibitors

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Mentor: Stijn Anthonissen

About me:

Home University: Rutgers (Class of 2026)

- Major: Cell Biology and Neuroscience
- Hobbies: Rutgers Performing Dance Company

Host University: KU Leuven

- LOSA group at Leuven Chem&Tech

Previous Research Experience:

- Social influence on the activation of dopamine reward pathways in the brain

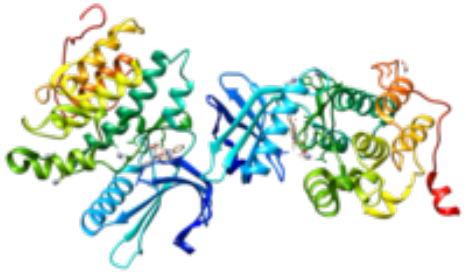
Future Plans:

- Graduate School: MSc in Biomedicine

AAK1 Inhibitors

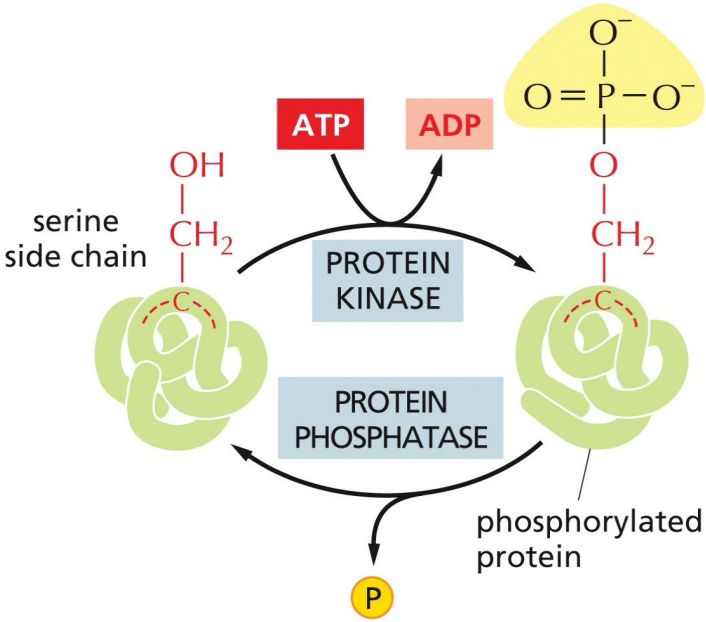
What are AAK1 kinases?

- Involved in:
  - Clathrin-mediated endocytosis
  - Neuronal signaling
  - Cell-to-Cell communication

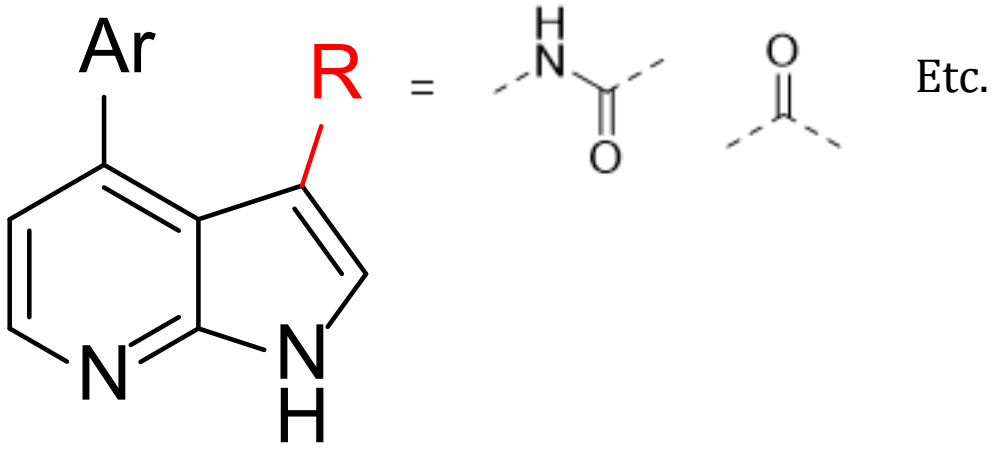


What are AAK1 Inhibitors?

- Small molecules that bind to the AAK1 kinases and block their activity
- Potential clinical applications: neuropathic pain relief, Alzheimer's disease, Parkinson's disease



Organic Synthesis



- **Synthesis of functionalised scaffolds with possible AAK1 inhibitory activity**
  - Suzuki Coupling
  - Friedel-Crafts Acylation
  - Buchwald-Hartwig Amidation
  - Redox reactions (e.g. nitro reductions)
  - Pyridine addition reactions

Outlook

- Continue with the discovery of novel synthesis pathways of potential AAK1 inhibitors
- Further Modification of Linkers (different functional groups as linkers)
- Testing biological activity (results not available yet)

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- Rutgers Study Abroad Coordinator: Ms. Patricia Welsh

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Thank You! Any questions?

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