

MD/Special Training in Research (MD/STIR): Enhancing your medical education through research



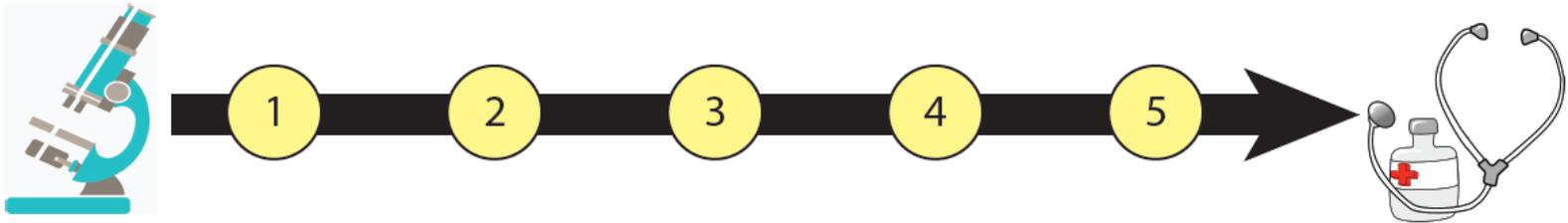
- Ing Swie Goping, PhD
 - Chair – MD with Special Training in Research (STIR)
- Oana Caluseriu, MD
 - Chair—MD with Special Training in Research (STIR)
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What is MD/STIR?

- For research-orientated undergraduate medical students
- Complete 6 months of research during their medical school training
 - Meet milestones (e.g.)
- Can think of it as “MD with honors”
- Annotation on degree parchment and transcripts
 - “MD with Special Training in Research”

What kind of research is recognized?



- From basic fundamental to clinical
- Apoptosis studies are an excellent example of “bench-to-bedside” research
 - Observed a phenomenon
 - Determined molecular mechanism
 - Observed apoptotic defects in a human condition
 - Developed and tested a novel drug that treated the disease

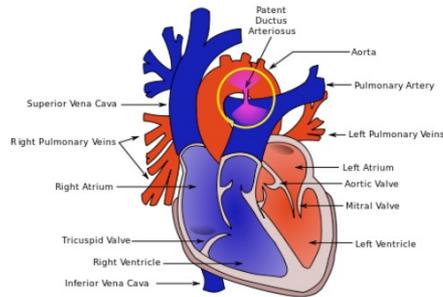
1. Apoptosis is programmed cell death



<http://www.google.com/search?q=tadpole%20metamorphosis%20images&ie=UTF-8&oe=UTF-8>



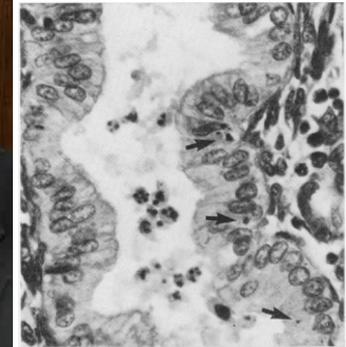
William Harvey, MD



Harvey, (1628) *Exercitatio Anatomica de Motu Cordis et Sanguinis in Animalibus*



John Kerr, MD



Kerr et al.. (1972)

- Described a new paradigm in cell biology

2. Caspase and Bcl-2 regulate apoptosis



Sydney Brenner, PhD



John Sulston, PhD



Robert Horvitz, PhD

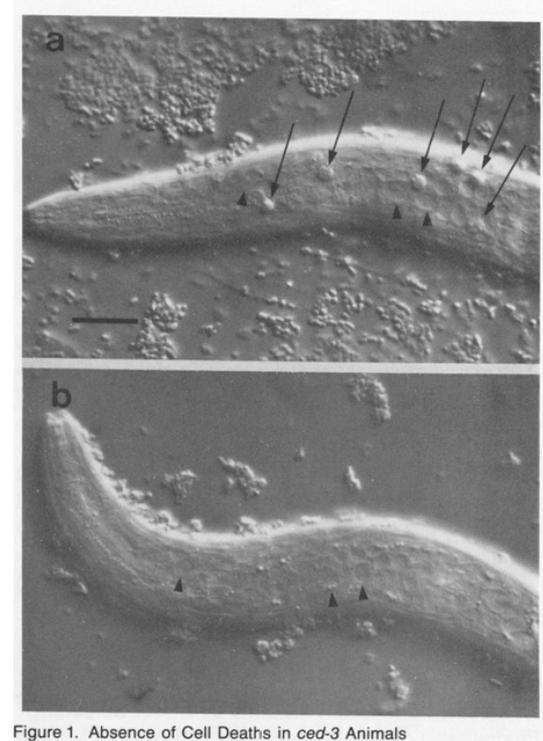


Figure 1. Absence of Cell Deaths in *ced-3* Animals

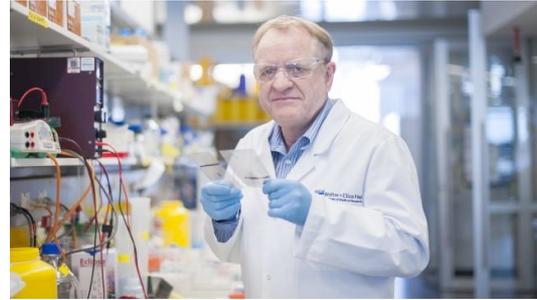
Ellis and Horvitz. 1986, Cell 44, 817

- Discovered molecular mechanism for apoptosis

3. Bcl-2 causes lymphoma



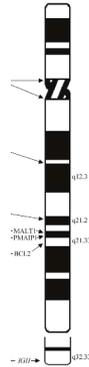
Carlos Croce, MD



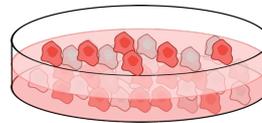
David Vaux, PhD



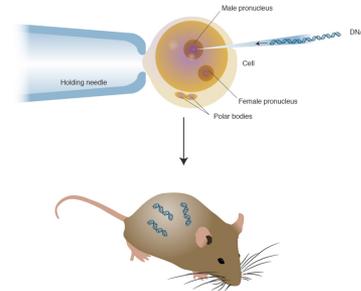
S. Korsmeyer, MD



Tsujimoto et al., 1985



Vaux et al., 1988



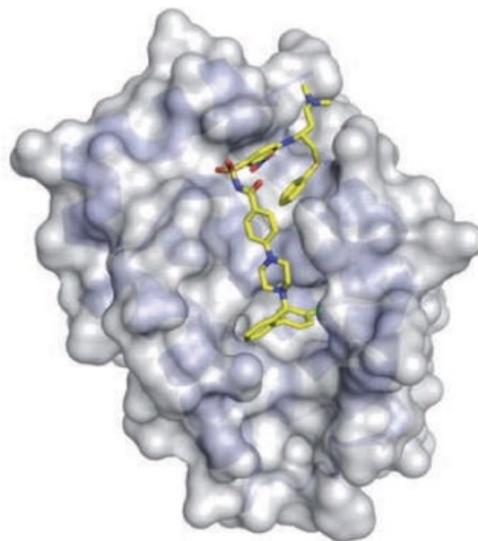
McDonnell and Korsmeyer., 1991

- Discovered apoptosis is dysregulated in cancer

4. Bcl-2 proteins as drug targets

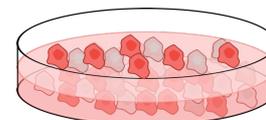


Stephen Fesik, PhD



Muchmore et al., 1996

Nuclear Magnetic Resonance

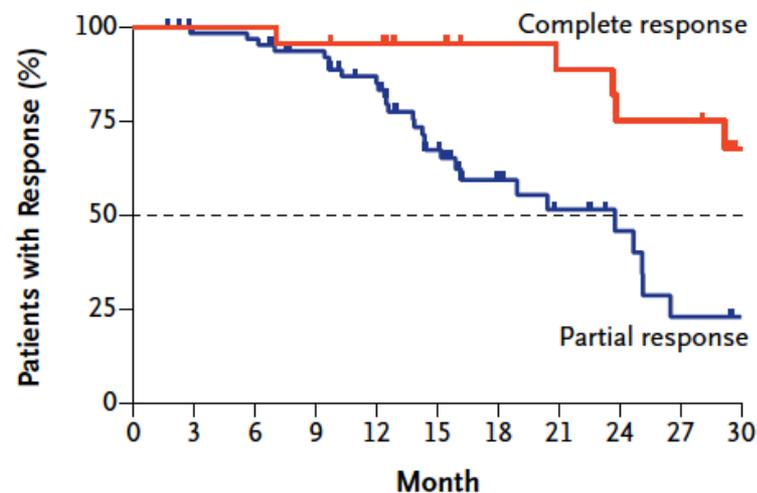


- Designed small molecule inhibitors of Bcl-2 proteins

5. Venetoclax FDA-approved for lymphoma



D



No. at Risk

Complete response	23	23	23	22	21	18	14	13	11	11	6
Partial response	69	63	62	56	48	32	18	12	8	4	3

- FDA approval of Bcl-2 inhibitor for CLL (2016)

MD/STIR requirements

- Research component:
 - ~24 weeks of active research conducted under the supervision of a research-intensive faculty member
 - Produce and analyze data that tests a research hypothesis
- Written component:
 - Research proposal
 - Final report
- Presentation component:
 - 3 minute pitch
 - 15-45 minute oral seminar
 - Poster presentation
 - Final oral presentation and defense

MD/STIR research timeline options

- How do you fit research into your schedule?

A

	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Year 1							Application		FT Research (16wk)			
Year 2									FT Research (8wk)			
Year 3	Report due		Defence									
Year 4												

Option 1: FT Summer 1; FT 8wk of Summer 2

B

	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Year 1							Application		FT Research (16wk)			
Year 2	PT Research (~3d/month=4wk)								FT (4wk)			
Year 3	Report due		Defence									
Year 4												

Option 2: FT Summer 1; PT yr2; FT 4wk of Summer 2

C

	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Year 1							Application		FT Research (16wk)			
Year 2	PT Research (~3d/month=4wk)											
Year 3	PT Research (~3d/month=4wk)											
Year 4	Report due		Defence									

Option 3: FT Summer 1; PT yr2; PT yr 3

* 2 oral presentations in Summer 1

** 1 oral presentation at time chosen by supervisor

*** Poster presentation in year 2 in FoMD Summer student research day

Where can you find information on STIR?

<https://www.ualberta.ca/medicine/programs/mdstir>

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MD with Special Training in Research

Overview:

The Faculty of Medicine & Dentistry (FoMD) at the University of Alberta offers the MD with Special Training in Research Program (MD/STIR) to undergraduate medical education (UME) students. This program is designed for those students who wish to participate in research above what is offered within the UME curriculum. UME students join a research team and directly engage in biomedical research while concurrently fulfilling MD/STIR requirements (application, presentations, reporting, defense). Students that successfully complete their MD degree and all requirements of the MD/STIR program receive the designation of "Special Training in Research" on their degree parchment and transcript.

Contact Us



For more information, please contact:

Nicole Kosturic

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E: nkosturi@ualberta.ca

FAQs

- What is the advantage of enrolling in this program since I already have research experience?
 - MD/STIR designation acknowledges your participation in a Faculty-approved structured research program
 - *Take your research to “the next level”*
 - → submit a research proposal
 - Under the guidance of your Supervisor, you write a research proposal (driver/passenger)
 - → work in a research lab
 - This is now YOUR project (motivated to learn from team members, propose methodology or analytical improvements etc.)
 - → write up your final data in a research report
 - By writing a formal report, you really get to “know your study”.
 - → give an oral presentation and defend your data
 - Improve your presentation and critical thinking skills and receive constructive feedback from a panel of experts
 - A chance to present your data in a scientific conference

FAQs

- Can I participate if I already have a post-graduate degree in research?
 - Absolutely!
 - This is a great opportunity to engage in different research and remain engaged with the research community
- Will I be able to publish my results?
 - Absolutely!
 - Some undergraduate research students can and do publish their results. Almost always, their research contributes to a larger study so there are multiple authors and the publications is usually a few years later. For this to happen, you need a good training environment with a good study design, robust data, meaningful results, and often—luck!

Comments from former MD STIR students

- *The program benefits clinical training and development*
 - Practice with verbal and written communication
 - Learning to be a medical expert in one area
 - Practice searching research medical databases for new research
- *The best part of the program was getting to officially take part in research during medical school*
 - The program allowed me to take a larger role in performing a research project that I may not have had without the program's endorsement
- *My research experience helped me develop research skills, technology development skills, complex problem-solving skills and it gave me multiple awesome interpersonal relationships with my research colleagues*

Comments from former MD STIR students

- *I think the most important thing I gained from this program is further experience in presenting and defending my research. I have given presentations before, but never had to defend my work. I also liked how the program mandated a certain number of presentations during the summer, as this provided motivation for me to give more presentations than I otherwise would have.*

Questions?

