



CZECH YOUNG  
IMMUNOLOGISTS

## CYI representatives

Ivča  
Verča  
Barča



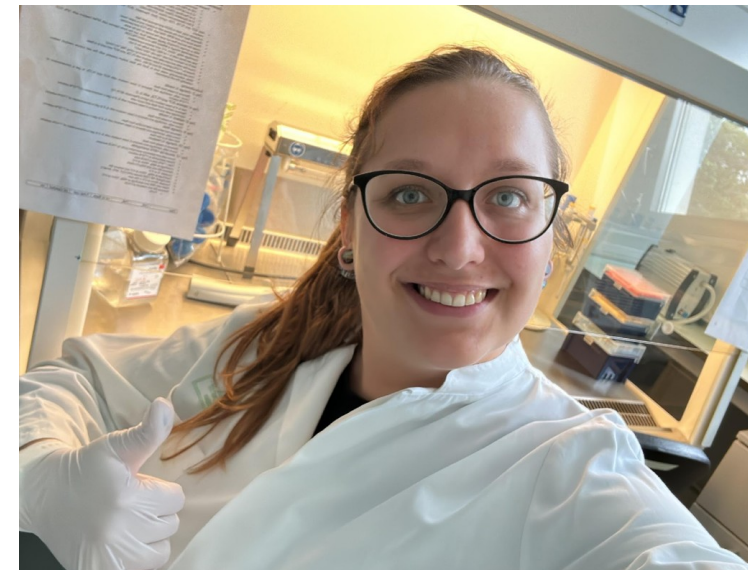
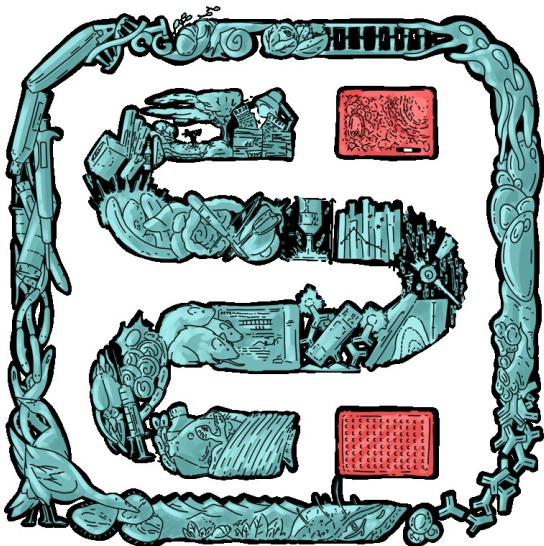


FACULTY OF SCIENCE  
Charles University

# Rocky road of parasite immunology

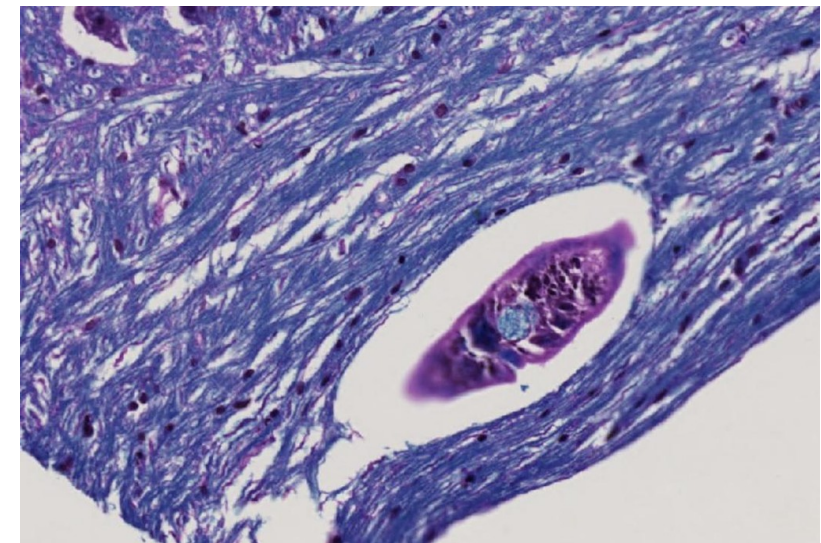
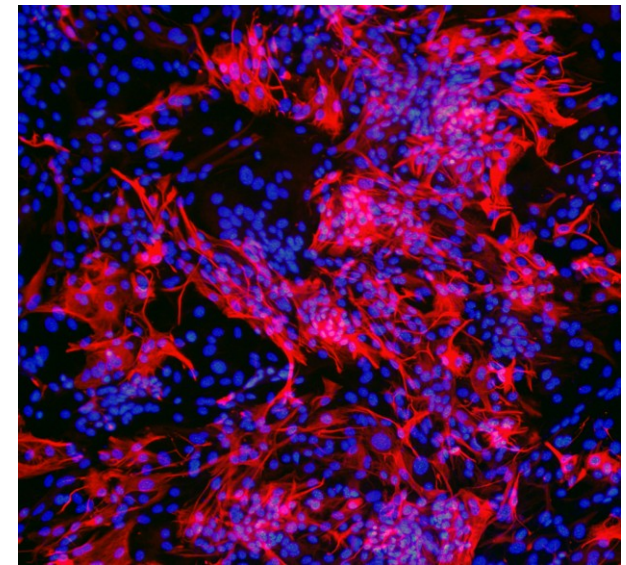
Barbora Šmídová

Parasitology (focused on host immunology)



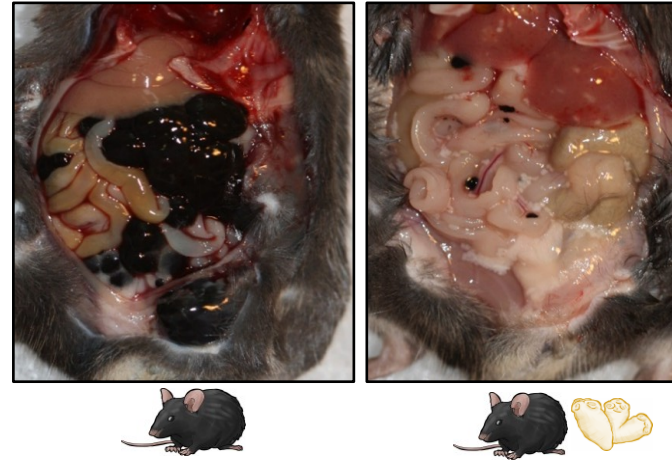
# How I got where I am

- Parasites are amazing!
- Wait, they can influence immunity of the host?
- Why does *Trichobilharzia regenti* survive in ducks but not in mice?  
Could nitric oxide play a role?
- Not NO, but what about **myeloid cells**?
- The parasite stimulates M2 response!  
Could it alleviate multiple sclerosis symptoms?



# Side projects

- Myeloid cells in tapeworm-cancer model



- Eosinophil fun!



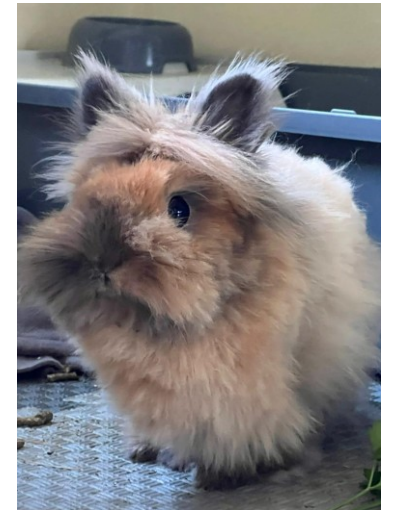
# Non-lab side projects

- Organizing events for freshmen
- Pedagogy minimum
- Teaching Microscopy techniques
  
- CYI
  
- Zeptej se vědce! (Ask a scientist)



# Take home message

- Science is awesome but if you're not careful, it can lead to burn-out
- Side projects can increase happiness
- Conferences are great for networking
- Internship abroad can really open your eyes
- Academy is not the only way



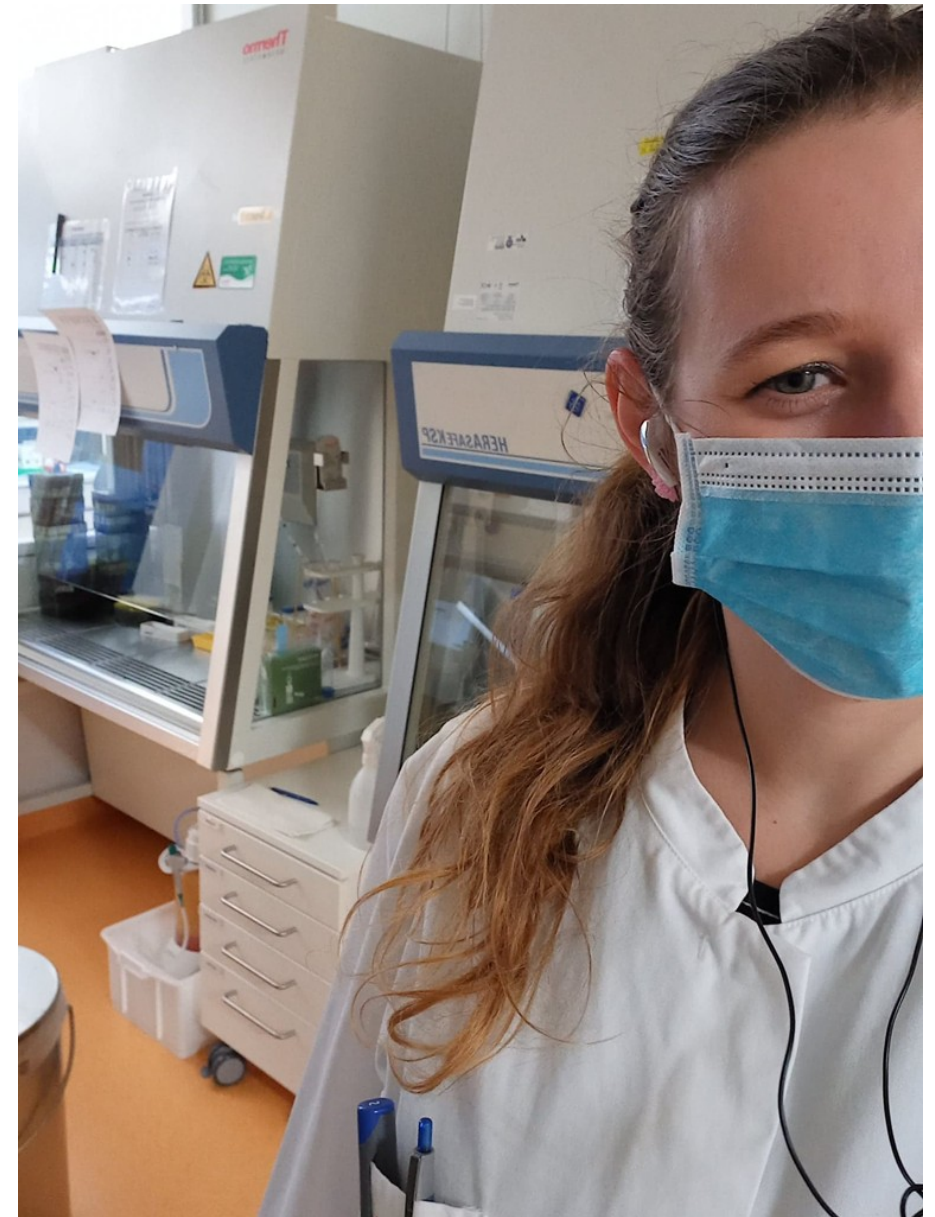


CZECH YOUNG  
IMMUNOLOGISTS

# Two internships in Germany during my master's studies

Unveiling the challenges and lessons I've learned

Iva Benešová



# Basic info

- **Bachelor:** Biology at the Faculty of Science, Charles University  
  
Mesenchymal stem cells & their effects on apoptosis of leukocytes (prof. Vladimír Holáň)





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Microbiota as a modulator of carcinogenesis (MUDr. Miloslav Kverka)  
  
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2 internships in Germany – cancer immunology (Leibnitz Institute in Regensburg, prof. Philipp Beckove and TU Dresden, prof. Marc Schmitz)
- **2<sup>nd</sup> year Phd student** at the Second Faculty of Medicine and University hospital Motol  
  
Cancer immunology, especially soft tissue sarcomas (doc. Zuzana Ozaniak Střížová)
- **CYI core member**



# First stay abroad – when everything goes wrong...



2nd year of my master's

# I need money!



Gemeinschaft  
für studentischen  
Austausch in  
Mittel- und  
Osteuropa e.V.



ČESKO-NĚMECKÝ  
FOND BUDUCNOSTI  
DEUTSCH-ÖSTERREICHISCHER  
ZUKUNFTSFONDS

Letní semestr 2022

## Studijní stipendium GFPS

Dobrovolnická organizace GFPS nabízí za podpory Česko-německého fondu budoucnosti **studentům všech studijních oborů semestrální stipendium na vybranou německou vysokou školu**. Cílem stipendia je podpořit především první výjezdy studentů do zahraničí, kteří se chtějí zlepšit v německém jazyce a poznat německou kulturu.

### Co od nás získáte?

- o Stipendium ve výši **650 € měsíčně** udělované **od 01.04.2022 do 31.08.2022**
- o Úhradu semestrálního poplatku za studium
- o Úhradu případné vratné kauce za bydlení
- o Osobní asistenci při zařizování pobytu a začlenění do tzv. Stadtgruppe fungující v daném univerzitním městě
- o Přátelství ze spolupracujících zemí střední a východní Evropy
- o Zkušenosti s prezentováním vlastního projektu v němčině

### Podmínky:

- o **student denního studia české VŠ**
- o věk maximálně **30 let**
- o zájem o kulturní spolupráci v rámci střední Evropy
- o komunikativní **znalost německého jazyka (min. B1)**
- o české občanství
- o nevykonávat během zahraničního pobytu žádnou výdělečnou činnost

### Jak se ucházet o stipendium?

Zašlete nám nejpozději do 31.10.2021<sup>1</sup> ([ulrike.janssen@gfps.cz](mailto:ulrike.janssen@gfps.cz)):

- o **Vyplněnou žádost o stipendium** - formulář ke stažení zde: <https://cutt.ly/gxFKONR>
- o **Popis projektu** (výstup ze studia na zahraniční univerzitě, realizace vlastního nápadu, část závěrečné práce apod.), na kterém chcete pracovat během zahraničního pobytu. Popis projektu by měl obsahovat **obor**, ve kterém bude práce psaná, **popis tématu a metodiky projektu, hypotézy, stručnou osnovu a účel projektu**. Musí být v **německém jazyce v rozsahu 2-3 stran** (*Times New Roman 12, řádkování 1,5*).
- o **Motivační dopis** zahrnující důvody žádosti o stipendium GFPS rovněž v **německém jazyce, 1 normostrana** (*Times New Roman 12, řádkování 1,5*).
- o **Poplatek** za výběrové řízení 300,- Kč.  
*Tento poplatek je třeba uhradit na účet 2600945904/2010. Ve zprávě pro příjemce uveďte své jméno a jako variabilní symbol použijte své rodné číslo bez lomítka. Bez zaplacení tohoto poplatku nebude přihláška brána za úplnou!*

### Před odjezdem:

- o Samostatně (s naší pomocí) podáte přihlášku tzv. Freemovera a zajistíte si včasnou imatrikulaci na Vámi vybranou německou vysokou školu (plnění určitého počtu kurzů nebo kreditů ale není vyžadováno).
- o S osobním asistentem si zařídíte ubytování a cestu.

### Co Vás čeká v rámci pobytu s GFPS?

- o Bezplatná účast na **dvou seminářích** (na počátku a konci studijního pobytu), kde se schází stipendisté, předsednictvo a další členové GFPS z Čech, Německa, Polska, Běloruska a Ukrajiny (*účasť je povinná*)
- o Písemně vyhotovení závěrečné zprávy z pobytu
- o Zpracování studijního záměru (projektu), jeho následná prezentace a písemně vyhotovení

<sup>1</sup> Odevzáním přihlášky dává uchazeč sdružení GFPS-CZ souhlas ke zpracování osobních údajů. Sdružení GFPS-CZ se zavazuje, že tyto údaje nebude poskytovat třetí osobě.

Průkazy UK
Praktické informace
Poradny
Studenti se speciálními potřebami
Akademické ceremonie
Centrum celoživotního vzdělávání
UK Point
Letní školy UK 2021
Studium v zahraničí
~ <b>Mobilita studentů</b>
> <b>Programy EU - Erasmus+</b>
> <b>Studijní pobyt v akademickém roce 2021/2022</b>
- Studijní pobyt v akademickém roce 2020/2021
- Praktické stáže v akademickém roce 2020/2021
- Praktické stáže v akademickém roce 2021/2022
- Naši partneři - inter-institucionální dohody
- Studenti se speciálními potřebami 2021/2022
- Závěrečné zprávy studentů
- Užitečné informace
- Koordinátoři
- (EN) Incoming students - Přijíždějící studenti
- Erasmus University Charter and Policy Statement
- Mezinárodní mobilita
- Krátkodobé mobility doktorandů
- Green Erasmus
- Erasmus charta



Erasmus+

[Outgoing Erasmus Students \(English version\)](#)

Pro tento akademický rok je připraveno pro studenty Univerzity Karlovy téměř **2400** dohod s evropskými institucemi, které zahrnují okolo **4000** pobytových míst na jedno nebo dvousemestrální pobyt v zahraničí v rámci programu Erasmus+. Nabídka obsahuje destinace ve všech evropských zemích, které jsou do programu Erasmus+ zapojeny.

<b>Kdo</b>	Studijní pobyt Erasmus+ se může účastnit každý student, který je zapsán do akreditovaného bakalářského, magisterského nebo doktorského studijního programu a bude po celé období studijního pobytu v zahraničí řádně zapsán ke studiu na Univerzitě Karlově.
<b>Kde</b>	Studijní pobyt mohou studenti absolvovat v každé zemi zapojené do programu Erasmus+ kromě České republiky: Dánsko, Finsko, Island, Irsko, Lichtenštejnsko, Lucembursko, Norsko, Švédsko, Belgie, Francie, Itálie, Kypr, Malta, Německo, Nizozemsko, Portugalsko, Rakousko, Řecko, Španělsko, Bulharsko, Chorvatsko, Estonsko, Maďarsko, Lotyšsko, Litva, Polsko, Rumunsko, Srbsko, Slovinsko, Slovensko, Severní Makedonie, Turecko
<b>Kdy</b>	Studijní pobyt může absolvovat každý student již od 1. ročníku Bc studia.
<b>Na jak dlouho</b>	Studijní pobyt mohou trvat 2 - 12 měsíců. Za minimální délku pobytu 2 měsíce se považuje 60 dní.
<b>Jak často</b>	V rámci programu Erasmus+ se studenti mohou účastnit studijního pobytu v zahraničí opakovaně v každé úrovni svého vysokoškolského studia (Bc, Mgr/NMGr, Ph.D). Celková penzum pro každou úroveň studia je 12 měsíců (resp. 24 měsíců u StI letých Mgr. programů), přičemž těchto 12 (resp. 24) měsíců může tvořit studijní pobyt (Student Mobility for Studies), praktická stáž (Student Mobility for Traineeship) a/nebo kombinace těchto aktivit.



Realizace studijního pobytu v rámci programu Erasmus+ vyžaduje administrativní postup, pro jehož zjednodušení používá Univerzita Karlova on-lineovou aplikaci. Prostřednictvím této aplikace má každý účastník programu Erasmus+ možnost sledovat jednotlivé administrativní kroky (stav), získat příslušné dokumenty ve formátu pdf, ověřovat datum a výši zasláné finanční podpory atd. On-lineová aplikace programu Erasmus používá údaje Studijního informačního systému (SIS) a informace o inter-institucionální dohodě, na jejíž studijní pobyt je student nominován.

- o [Výběrové řízení a nominace studentů](#)
- o [Založení přihlášky - on-line APLIKACE](#)
- o [Studijní plán](#)
- o [Přihláška do zahraničí](#)
- o [Převod stipendia na evropský účet](#)
- o [Rozhodnutí děkana o přiznání účelového stipendia](#)
- o [Účastnická smlouva](#)
- o [Zdravotní prohlášení](#)
- o [Studium, změny studijního plánu, prodloužení pobytu](#)
- o [Povinnosti po návratu](#)

- Application: GFPS
- Initial target: Integrated Immunology (Erlangen)
- At the end: Molecular medicine (Regensburg)
- Study coordinator + tutor from GFPS
- 1 – 2 months practical courses (possibility to extend up to 3 months)
  - Immunological courses shouldn't be problem :P

UR  
FAKULTÄT FÜR MEDIZIN

Universität Regensburg  
**Wahlpflichtmodule im  
Masterstudiengang Molekulare Medizin**

Alphabetisch sortiert:

Diagnostische und Experimentelle Molekularpathologie:  
[AG Evert](#)  
[AG Calvisi](#)  
[AG Dietmaier](#)

Entwicklungsbiologie:  
[AG Schnewly](#)

Grundlagen der Herz- Kreislauf-Forschung:  
[Kardiologie/Forschung](#)

Humangenetik:  
[Humangenetik](#)

Immunologie (RCI):  
[AG Abken](#)  
[AG Beckhove](#)  
[AG Feuerer](#)  
[AG Gattinoni](#)  
[AG Hehlhans](#)  
[AG Ritter](#)

Infektionsimmunologie:  
[AG Gessner](#)  
[AG Jantsch](#)  
[AG Schmidt](#)  
[AG Wagner](#)

Industriemodul: Angewandte Molekulare Medizin:  
[Firmen](#)

Lipidomics:  
[Lipidomics](#)

Medizinische Mikrobiologie  
siehe Infektionsimmunologie

Molekulare Epidemiologie:  
[Lehrstuhl Genetische Epidemiologie/Lehre](#)

Molekulare Hepatologie:  
[Experimentelle Hepatologie](#)

Molekulare Infektionsepidemiologie  
[AG Schneider](#)

Molekulare Neurowissenschaften:  
[AG Hau](#)  
[AG Kerkoff](#)  
[AG Linker](#)  
[AG Proescholdt](#)  
[AG Riemenschneider](#)  
[AG Wetzol](#)

6 Wahlpflichtmodule á 4 Wochen

Molekulare Onkologie:  
[AG Brockhoff](#)  
[AG Dietmaier](#)  
[AG Klein](#)  
[AG Pukrop / Polzer](#)  
[Fraunhofer ITEM-R](#)  
[AG Rehl](#)

Molekulare Signaltransduktion  
siehe Infektionsepidemiologie

Molekulare Pädiatrie:  
[AG Weiß](#)

Nieren- und Blutdruckforschung:  
[AG Schweda](#)  
[AG Reichold](#)  
[AG Castrop](#)  
[AG Warth](#)

Organoide  
n.n. ([Forschung Innere Medizin I](#))

Patienten-spezifisches 3D-Tumor-Modell  
[AG Härteis](#)

Personalized medicine -Pharmacokinetics:  
[AG El-Najjar](#)

Regenerative Medizin:  
[AG Bauer](#)  
[AG Docheva](#)  
[AG Grüssel](#)  
[AG Morscheck](#)  
[AG Schröder/Kirschneck](#)

RNA Biochemie:  
[AG Längst](#)  
[AG Meister](#)  
[AG Sommer](#)

Transplantations- / Tumorimmunologie:  
[AG Berneburg](#)  
[AG Edinger](#)  
[AG Geissler /Köhl](#)  
[AG Kreuz](#)  
[AG Mack](#)  
[AG Maisch](#)  
[AG Wege](#)  
[AG Holler](#)  
[AG Hoffmann](#)  
[AG Singer](#)  
[AG Thomas](#)  
[AG Eggenhofer](#)

Digitale Module:  
Molekulare Therapieansätze und  
Kommunizierung und Publizieren

Vertiefung und Intensivierung:  
Verlängerung eines bereits absolvierten  
Moduls um weitere 4 Wochen Praktikum.

# AG Beckhove

- CV + motivation letter + letter of recommendation
- Online interview
- Vaccination! (anti-HBsAb  $\geq$  100 IU/L)  
+ covid quarantine for 5 days
- 8-12 working hours per day
- Work under a supervision of PhD student (hierarchy), well organized
- They strictly followed the rules
- My project: human samples (mostly blood samples) – isolation, stimulation, flow cytometry



## Research Groups

- > **Determinants of T cell functions in cancer tissue**  
Dr. Anchana Rathinasamy
- > **T cell based immunotherapy of cancer**  
Dr. Slava Stamova
- > **Determinants of Regulatory T cell repertoire formation in tumor tissues**  
Dr. Maria Xydia
- > **Immune-checkpoint inhibitors**  
Dr. Valentina Volpin
- > **EU-Consortium PAVE**

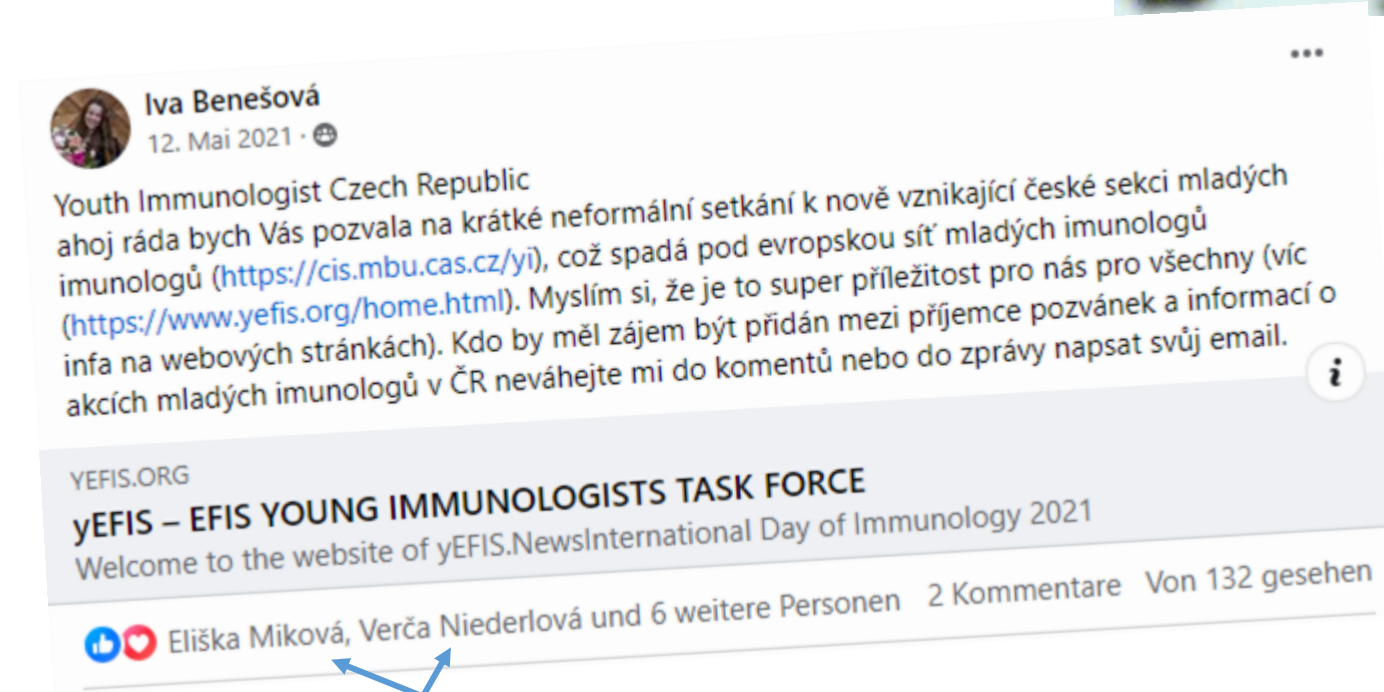
# Accommodation & free time



# Very strong restrictions in Bavaria... So I was a little bored



Marco De Zuani  
International Clinical  
Research Center, St. Anne's  
University Hospital, Brno



Currently core members



# What I have gained from it?

- Slowing down
- Time to think
  - What is really important for my satisfaction
- Stress resistance (COVID, lot of work)  
→ personal strength
- CYI family



**But what to do now?**



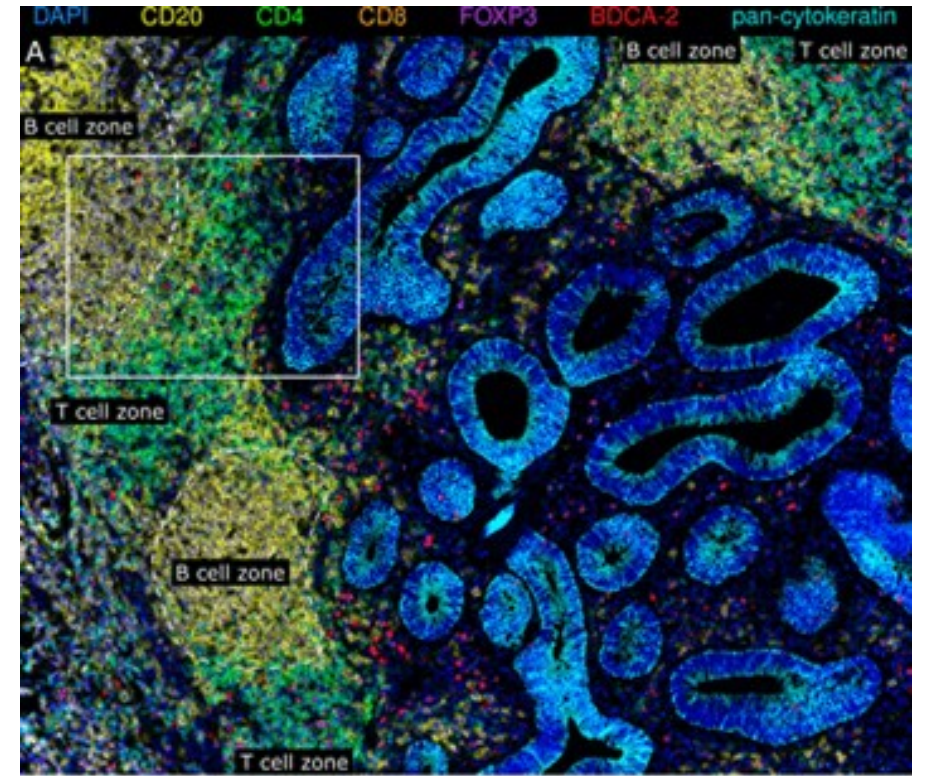
- One year extension of my master studies
- Arrangement of everything in Germany was much easier
- Arrangement of scholarship (Erasmus+) was much more complicated :D



- CV + motivation letter
- Great advantage of previous internship in Germany (especially in a well-known lab)
- Initially for 3 months (2 months extension with contract)
- Personal goals: state-of-the-art technology + arrange possible cooperation for my PhD studies

# AG Schmitz

- Work under a supervision of a PhD student
- Great team members
- Caring boss
- Multiplex immunohistochemistry



[Cancers \(Basel\)](#). 2022 Mar; 14(5): 1216.

PMCID: PMC8909898

Published online 2022 Feb 26. doi: [10.3390/cancers14051216](https://doi.org/10.3390/cancers14051216)

PMID: [35267524](https://pubmed.ncbi.nlm.nih.gov/35267524/)

## Clinical Significance of Tumor-Infiltrating Conventional and Plasmacytoid Dendritic Cells in Pancreatic Ductal Adenocarcinoma

[Ioana Plesca](#),<sup>1,†</sup> [Iva Benešová](#),<sup>1,†</sup> [Carolyn Beer](#),<sup>1</sup> [Ulrich Sommer](#),<sup>2</sup> [Luise Müller](#),<sup>1</sup> [Rebekka Wehner](#),<sup>1,3,4</sup> [Max Heiduk](#),<sup>3,4,5</sup> [Daniela Aust](#),<sup>2,3,4</sup> [Gustavo Baretton](#),<sup>2,3,4</sup> [Michael P Bachmann](#),<sup>3,4,6,7</sup> [Anja Feldmann](#),<sup>7</sup> [Jürgen Weitz](#),<sup>3,4,5</sup> [Lena Seifert](#),<sup>3,4,5</sup> [Adrian M Seifert](#),<sup>3,4,5</sup> and [Marc Schmitz](#)<sup>1,3,4,\*</sup>

# Accommodation & free time

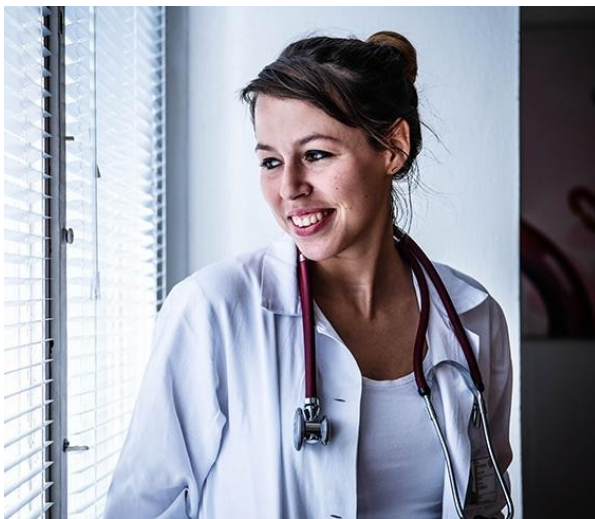


# Benefits?

- Scientific experience
- Inspiration
- Learning of the state-of-the-art technology
- Great people but making sure I want to do my PhD in Czechia



**So what next?**



[Cancers \(Basel\)](#), 2022 Oct; 14(19): 4578.

Published online 2022 Sep 21. doi: [10.3390/cancers14194578](https://doi.org/10.3390/cancers14194578)

PMCID: PMC9559230

PMID: [36230502](https://pubmed.ncbi.nlm.nih.gov/36230502/)

## The Immune Contexture of Liposarcoma and Its Clinical Implications

[Antonia Resag](#),<sup>1,†</sup> [Giulia Toffanin](#),<sup>2,†</sup> [Iva Benešová](#),<sup>1,3</sup> [Luise Müller](#),<sup>1</sup> [Vlatko Potkrajcic](#),<sup>4</sup> [Andrej Ozaniak](#),<sup>5</sup>  
[Robert Lischke](#),<sup>5</sup> [Jirina Bartunkova](#),<sup>3</sup> [Antonio Rosato](#),<sup>2,6</sup> [Korinna Jöhrens](#),<sup>7,8,9</sup> [Franziska Eckert](#),<sup>4,10</sup> [Zuzana Strizova](#),<sup>3,\*‡</sup>  
and [Marc Schmitz](#)<sup>1,8,9,\*‡</sup>



**Stay resilient & what doesn't kill you makes you stronger**

# LAB OF ADAPTIVE IMMUNITY



Artificial intelligence art by **DALL·E**

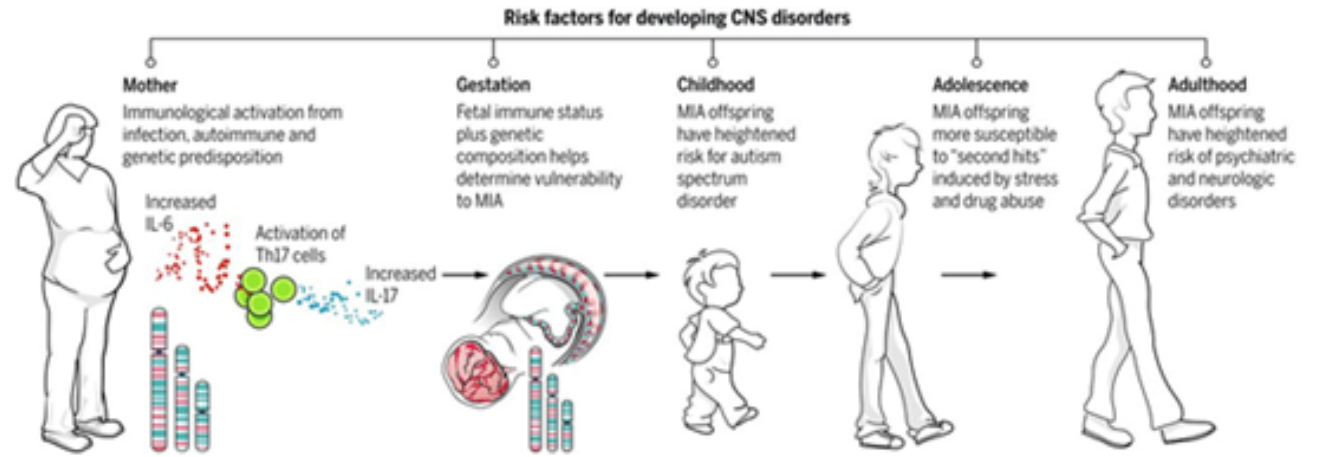
Find your way to science!

Veronika Niederlová  
PhD Student - Immunology  
Institute of Molecular Genetics  
Czech Academy of Sciences



# From autism to immunology

Role of immune system in autism

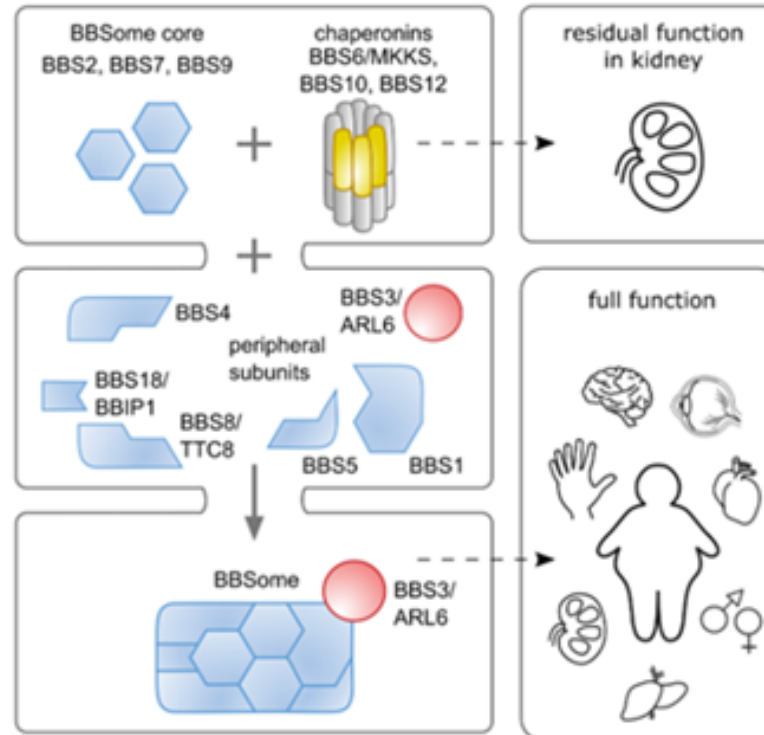


Estes et al., Science 2016

Lab of Adaptive Immunity

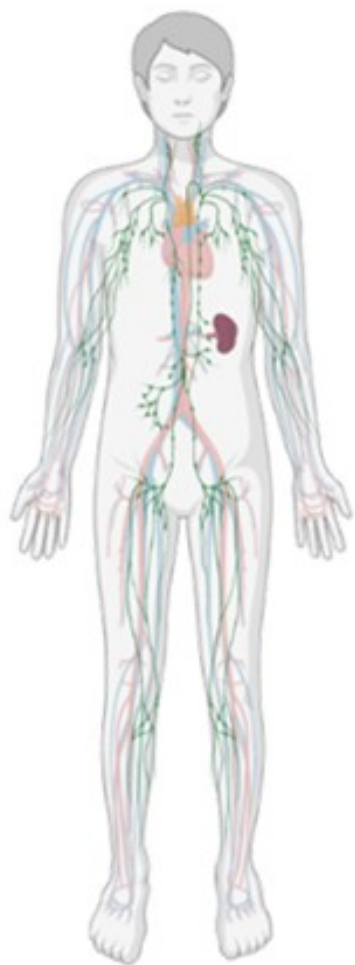
Bardet-Biedl syndrome

CD8<sup>+</sup> T cells and scRNAseq



Niederlova et al., Human mutation 2019

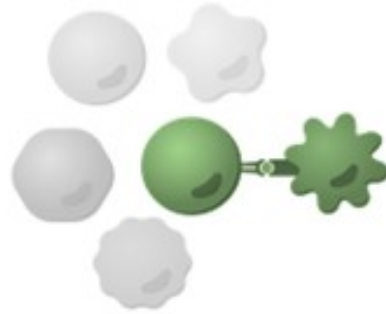
# CD8<sup>+</sup> T CELLS protect us from infections



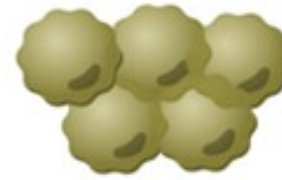
Biorender.com



**Protection against  
infection and cancer**



Naive CD8<sup>+</sup> T cells



Effector cells



Precursors of  
memory cells



Long-lived  
memory cells

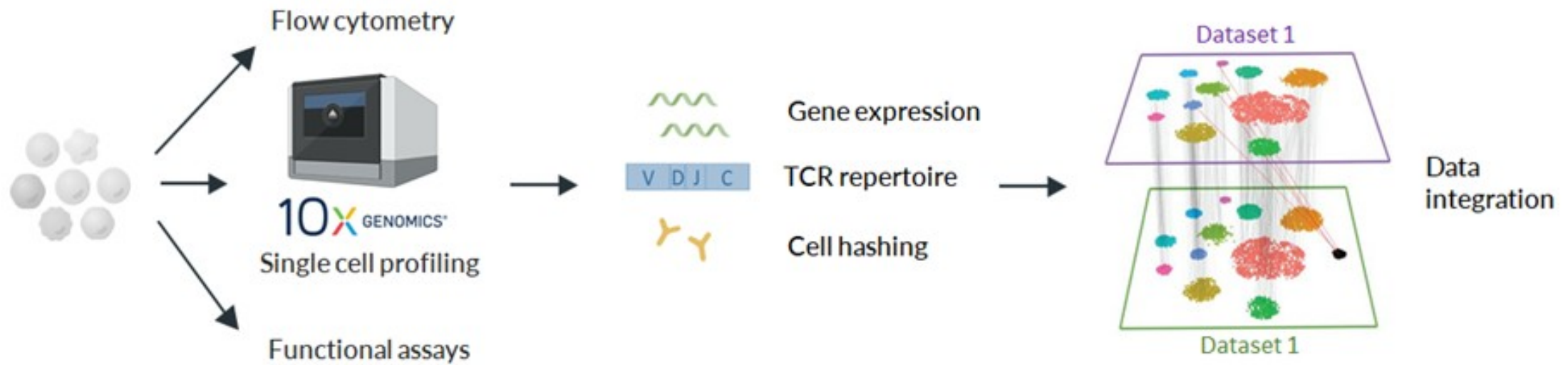


Precursors of  
exhausted cells



Exhausted  
cells

# EXPERIMENTAL DESIGN: From cells to data points



```
[genotype] Pairs by % explained reads:
  allele pair          explained
  K*01:01:01, K*01:02    99.11%
  K*01:01:01, K*01:03    92.99%
  K*01:02, K*01:03      83.14%

[genotype] Checking zygosity
[genotype] Likely heterozygous: minor/major nonshared count 0.22

[genotype] Most likely genotype explaining 13508 reads:
  K*01:01:01
  K*01:02

-----

[genotype] Genotyping HLA-L
[genotype] 41462 reads aligned to HLA-L in 6 classes
[genotype] Top 10 alleles by undivided read count:
  allele          read count
  L*01:02         40105
  L*01:01:02     3148
  L*01:01:01     3092

[genotype] Quantifying allele transcript abundance
[genotype] EM converged after 5 iterations

[genotype] Top alleles by abundance:
  allele          abundance
  L*01:02         96.22%

[genotype] Most likely genotype explaining 40105 reads:
  L*01:02

-----
```

```
DRB1  DRB1*16:01    0.06594096    DRB1*04:02    0.03427737
DPB1  DPB1*04:01    1.968448e-07    DPB1*141:01   0.5516973
Start typing HLA from R19_202_S1_L001_R2_001 - single-end RNA-seq sample
Input is a gzipped file ....
The read length of your input fastq was determined to be 151, so 0 mismatches will be allowed and 20 threads will be used.
-----HLA class I-----
First iteration starts....
Mapping .....
# reads processed: 190653617
# reads with at least one reported alignment: 1012483 (0.53%)
# reads that failed to align: 189641134 (99.47%)
Reported 193439961 alignments to 1 output stream(s)

Calculation of first digital haplotype....
1st iteration done.
Now removing reads that mapped to the three top-scoring groups .....
Second iteration starts ....
Mapping .....
# reads processed: 162929
# reads with at least one reported alignment: 162929 (100.00%)
# reads that failed to align: 0 (0.00%)
Reported 30160045 alignments to 1 output stream(s)
Calculation of second digital haplotype....
2nd iteration done.
-----2 digit typing results-----
#Locus Allele 1 Confidence Allele 2 Confidence
A A*02 9.542672e-05 A*68 0.8979927
B B*07 0.02835751 B*15 0.04650603
C C*04 0.06601108 C*07 0.2647673

Calculation of locus-specific expression ...
../../../../data/48_lab/Jupyter/221107_Diabetes/dia_hla2//HLA/R19_202_S1_L001_R2_001-ClassI.bowtieiog
```

```
[vercanie@dolphin ~/PRIMUS/data/48_lab/Jupyter/211203_arcasHLA/arcasHLA/dia] $ ../../arc
```

<pre>Fetching /hpapdata/HPAP-019/Immune Profiling/CITE-seq (RNA+ADT) 19_Spleen_CITE-seq RNA_R2_Run7_Well3.1.fastq.gz to hpapdata/HPAP026_pLN-H_CITE-seq RNA_R2_Run5_Well3.1.fastq.gz to hpapdata/HPAP026_pLN-H_CITE-seq RNA_R2_Run5_Well3.1.fastq.gz Immune Profiling/CITE-seq (RNA+ADT)/HPAP019_Spleen_CITE-seq RNA_R2_Run7_Well3.1.fastq.gz /hpapdata/HPAP-019/Immune Profiling/CITE-seq (RNA+ADT)/HPAP019_Spleen_CITE-seq RNA_R2_Run7_Well3.1.fastq.gz Connected to hpap-test.pmacs.upenn.edu.</pre>	<pre>Fetching /hpapdata/HPAP-026/Immune Profiling/CITE-seq (RNA+ADT) 19_Spleen_CITE-seq RNA_R2_Run5_Well3.1.fastq.gz to hpapdata/HPAP026_pLN-H_CITE-seq RNA_R2_Run5_Well3.1.fastq.gz Immune Profiling/CITE-seq (RNA+ADT)/HPAP026_pLN-H_CITE-seq RNA_R2_Run5_Well3.1.fastq.gz /hpapdata/HPAP-026/Immune Profiling/CITE-seq (RNA+ADT)/HPAP026_pLN-H_CITE-seq RNA_R2_Run5_Well3.1.fastq.gz Connected to hpap-test.pmacs.upenn.edu.</pre>	<pre>to hpap-test.pmacs.upenn.edu. hpapdata/HPAP-048/Immune Profiling/CITE-seq (RNA+ADT) pLN-H_CITE-seq RNA_R2_Run2_Well1.1.fastq.gz to hpapdata/HPAP-110_48/Immune Profiling/CITE-seq (RNA+ADT)/HPAP048_pLN-H_CITE-seq RNA_R2_Run2_Well1.1.fastq.gz HPAP-048/Immune P 100% 12GB 14.1MB/s 15:02 MB/s 17:11 to hpap-test.pmacs.upenn.edu.</pre>
<pre>Fetching /hpapdata/HPAP-019/Immune Profiling/CITE-seq (RNA+ADT) 19_Spleen_CITE-seq RNA_R2_Run7_Well4.1.fastq.gz to hpapdata/HPAP026_pLN-H_CITE-seq RNA_R2_Run5_Well4.1.fastq.gz to hpapdata/HPAP026_pLN-H_CITE-seq RNA_R2_Run5_Well4.1.fastq.gz Immune Profiling/CITE-seq (RNA+ADT)/HPAP019_Spleen_CITE-seq RNA_R2_Run7_Well4.1.fastq.gz /hpapdata/HPAP-019/Immune Profiling/CITE-seq (RNA+ADT)/HPAP019_Spleen_CITE-seq RNA_R2_Run7_Well4.1.fastq.gz Connected to hpap-test.pmacs.upenn.edu.</pre>	<pre>Fetching /hpapdata/HPAP-026/Immune Profiling/CITE-seq (RNA+ADT) 19_Spleen_CITE-seq RNA_R2_Run5_Well4.1.fastq.gz to hpapdata/HPAP026_pLN-H_CITE-seq RNA_R2_Run5_Well4.1.fastq.gz Immune Profiling/CITE-seq (RNA+ADT)/HPAP026_pLN-H_CITE-seq RNA_R2_Run5_Well4.1.fastq.gz /hpapdata/HPAP-026/Immune Profiling/CITE-seq (RNA+ADT)/HPAP026_pLN-H_CITE-seq RNA_R2_Run5_Well4.1.fastq.gz Connected to hpap-test.pmacs.upenn.edu.</pre>	<pre>hpapdata/HPAP-048/Immune Profiling/CITE-seq (RNA+ADT) pLN-H_CITE-seq RNA_R2_Run2_Well5.1.fastq.gz to hpapdata/HPAP-110_48/Immune Profiling/CITE-seq (RNA+ADT)/HPAP048_pLN-H_CITE-seq RNA_R2_Run2_Well5.1.fastq.gz HPAP-048/Immune P 100% 9951MB 10.1MB/s 16:22 MB/s 42:26 to hpap-test.pmacs.upenn.edu.</pre>
<pre>Fetching /hpapdata/HPAP-019/Immune Profiling/CITE-seq (RNA+ADT) 19_Spleen_CITE-seq RNA_R2_Run7_Well5.1.fastq.gz to hpapdata/HPAP026_pLN-H_CITE-seq RNA_R2_Run5_Well5.1.fastq.gz to hpapdata/HPAP026_pLN-H_CITE-seq RNA_R2_Run5_Well5.1.fastq.gz Immune Profiling/CITE-seq (RNA+ADT)/HPAP019_Spleen_CITE-seq RNA_R2_Run7_Well5.1.fastq.gz /hpapdata/HPAP-019/Immune Profiling/CITE-seq (RNA+ADT)/HPAP019_Spleen_CITE-seq RNA_R2_Run7_Well5.1.fastq.gz Connected to hpap-test.pmacs.upenn.edu.</pre>	<pre>Fetching /hpapdata/HPAP-026/Immune Profiling/CITE-seq (RNA+ADT) 19_Spleen_CITE-seq RNA_R2_Run5_Well5.1.fastq.gz to hpapdata/HPAP026_pLN-H_CITE-seq RNA_R2_Run5_Well5.1.fastq.gz Immune Profiling/CITE-seq (RNA+ADT)/HPAP026_pLN-H_CITE-seq RNA_R2_Run5_Well5.1.fastq.gz /hpapdata/HPAP-026/Immune Profiling/CITE-seq (RNA+ADT)/HPAP026_pLN-H_CITE-seq RNA_R2_Run5_Well5.1.fastq.gz Connected to hpap-test.pmacs.upenn.edu.</pre>	<pre>hpapdata/HPAP-048/Immune Profiling/CITE-seq (RNA+ADT) pLN-H_CITE-seq RNA_R2_Run2_Well6.1.fastq.gz to hpapdata/HPAP-110_48/Immune Profiling/CITE-seq (RNA+ADT)/HPAP048_pLN-H_CITE-seq RNA_R2_Run2_Well6.1.fastq.gz HPAP-048/Immune P 93% 9564MB 1.2MB/s 09:23 ETA MB/s 1:12:56 ETA</pre>

# INFECTION ATLAS: ~300 000 CD8<sup>+</sup> T cells

Lab of Adaptive Immunity  
Steady state  
65 106 cells



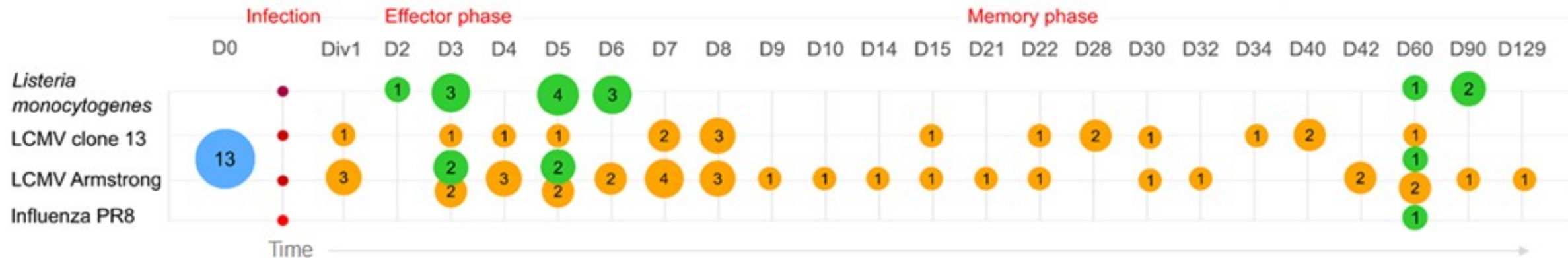
Lab of Adaptive Immunity  
Infections  
62 236 cells



Published datasets  
153 491 cells



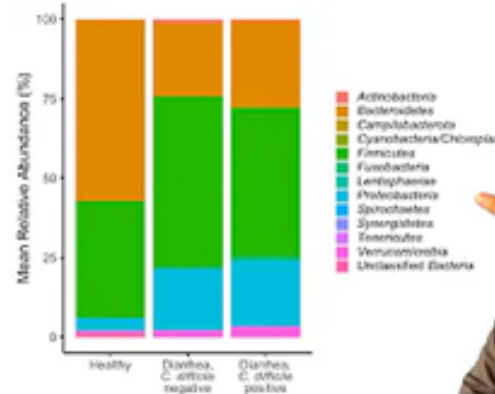
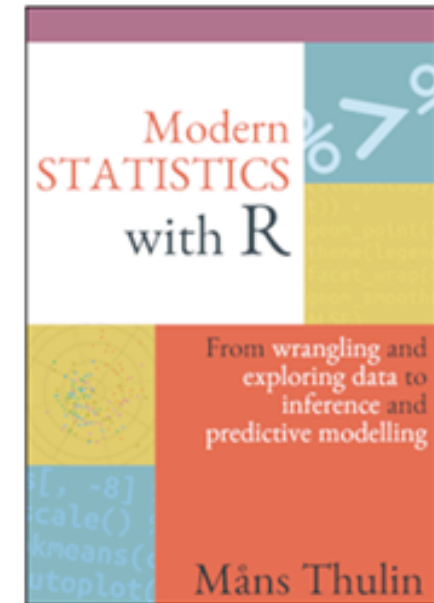
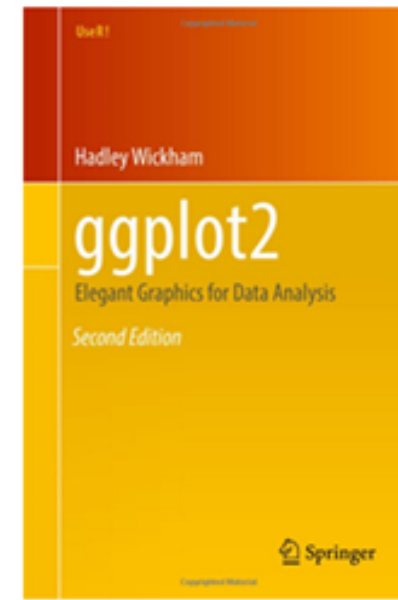
- Arsenio 2017
- Chen et al 2019
- Dahling 2022
- Kurd et al 2020
- Miller 2019
- Quezada 2023
- Schauder 2021
- Tsui 2022
- Wherry et al 2022
- Yao et al 2019
- Zander and Schauder et al 2019



# COMPUTATIONAL BIOLOGY

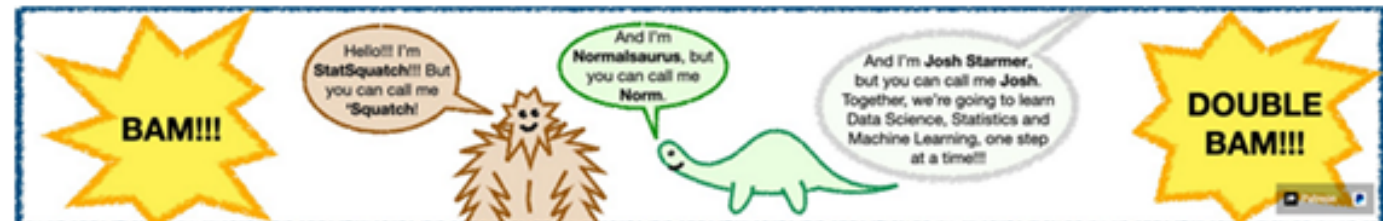
## Ways to learn

- Free books from introductory to advanced
  - <https://r4ds.had.co.nz/>
  - <https://ggplot2-book.org/>
  - <https://www.modernstatisticswithr.com/>
- Online MOOC courses – Coursera, EdX, DataCamp
  - <https://www.datacamp.com/courses/free-introduction-to-r>
  - <https://www.coursera.org/learn/r-programming>
- Youtube channels explaining concepts as well as teaching how to code
  - [StatQuest with Josh Starmer](#)
  - [Riffomonas with Pat Schloss](#)
  - [Stat115 by Shirley Liu](#)



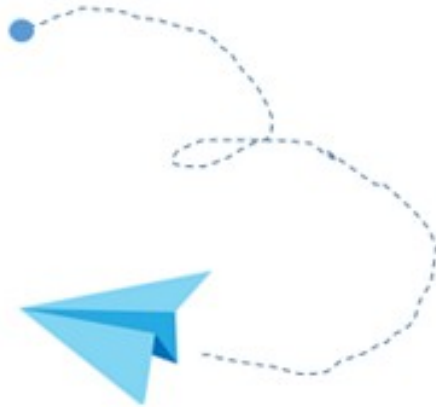
STAT115/215 BIO282/BST282  
Introduction to Computational  
Biology and Bioinformatics

Xiaole Shirley Liu  
Harvard University  
Dana-Farber Cancer Institute  
Broad Institute



# International research experience

Prague



Boston

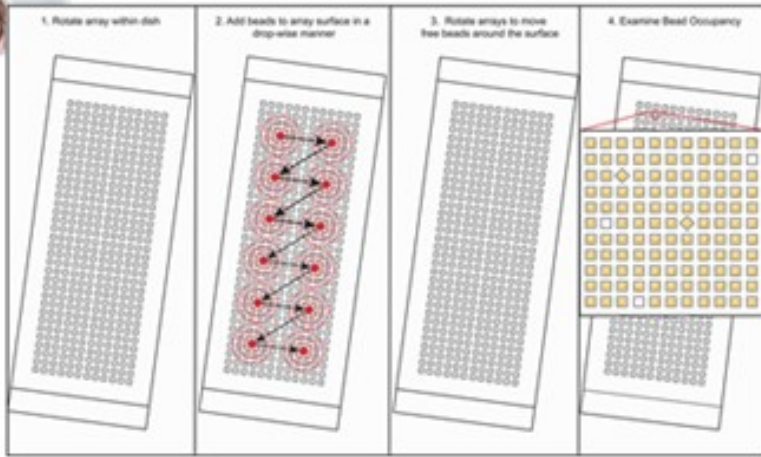


# What these labs do?



SHALEKLAB  
from cells to systems

Prof. Alex K. Shalek



Seq-Well scRNAseq protocol



Library preparation



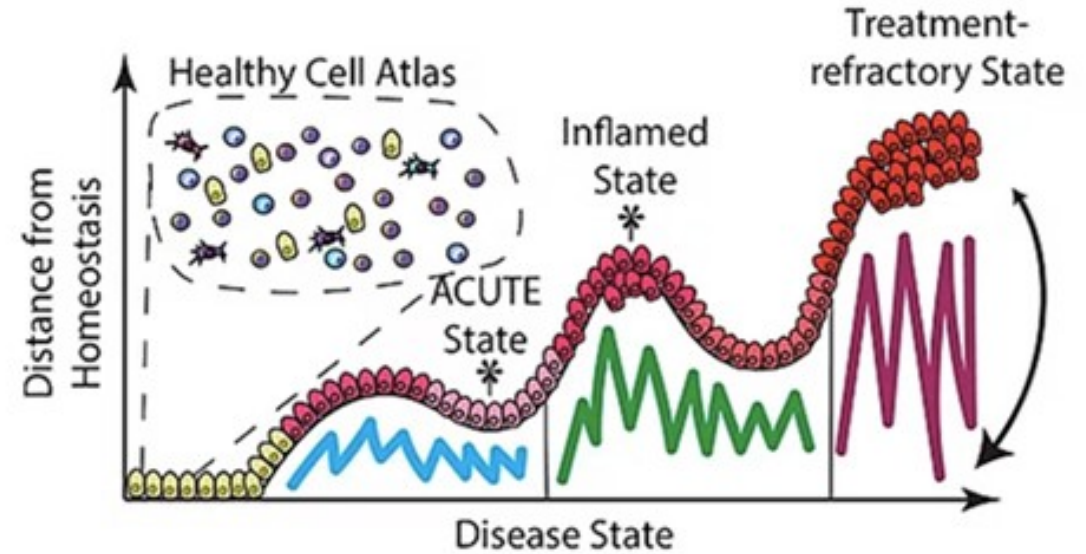
Next Seq



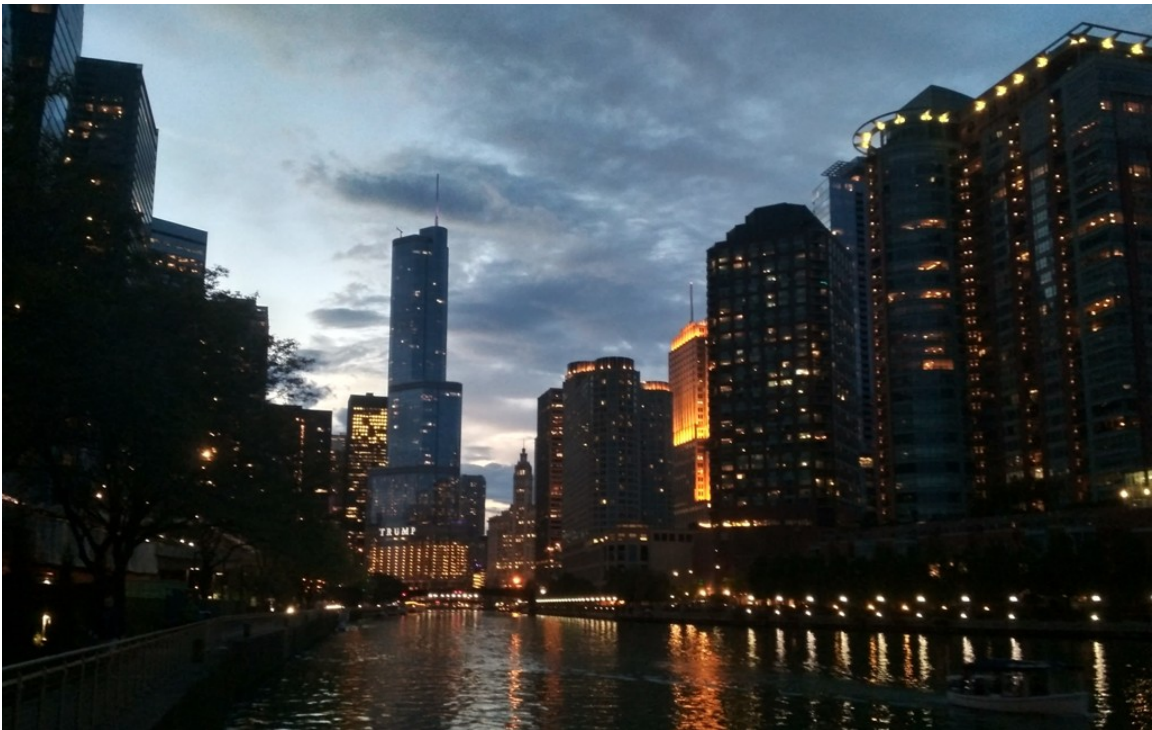
ORDOVAS-MONTANES LAB  
INFLAMMATION • MEMORY • IMMUNITY

Dr. Jose Ordovas-Montanes

LAB OF  
ADAPTIVE  
IMMUNITY









# CZECH YOUNG IMMUNOLOGISTS

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4.10.2023  
Brno

Iva Benešová; Veronika Niederlová; Barbora Šmídová

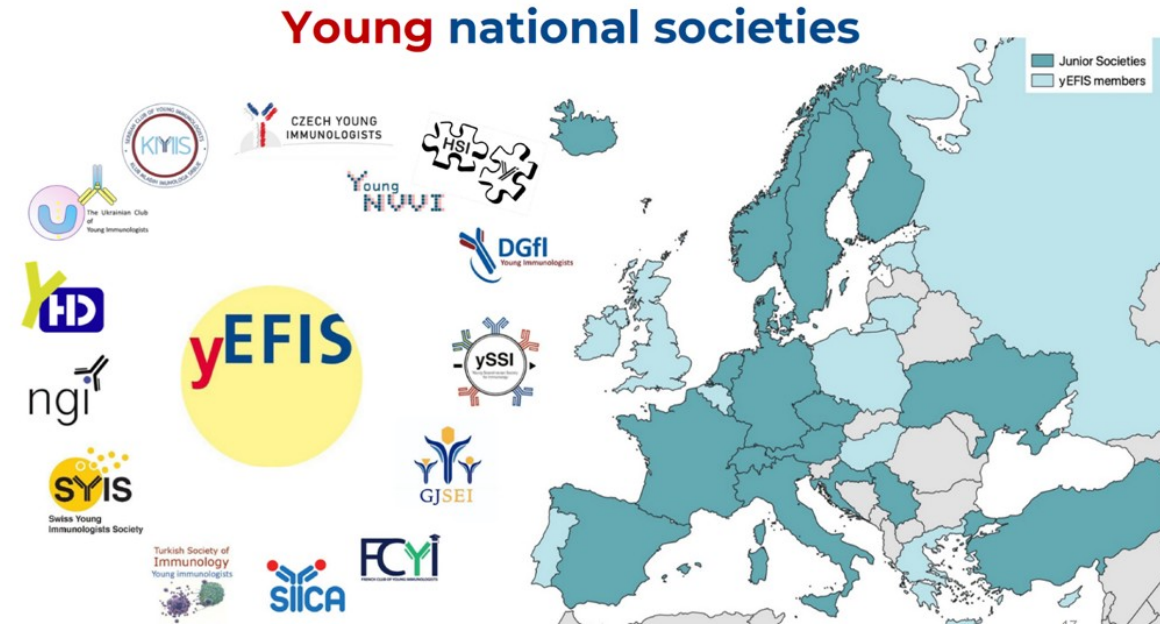


# Mentimeter

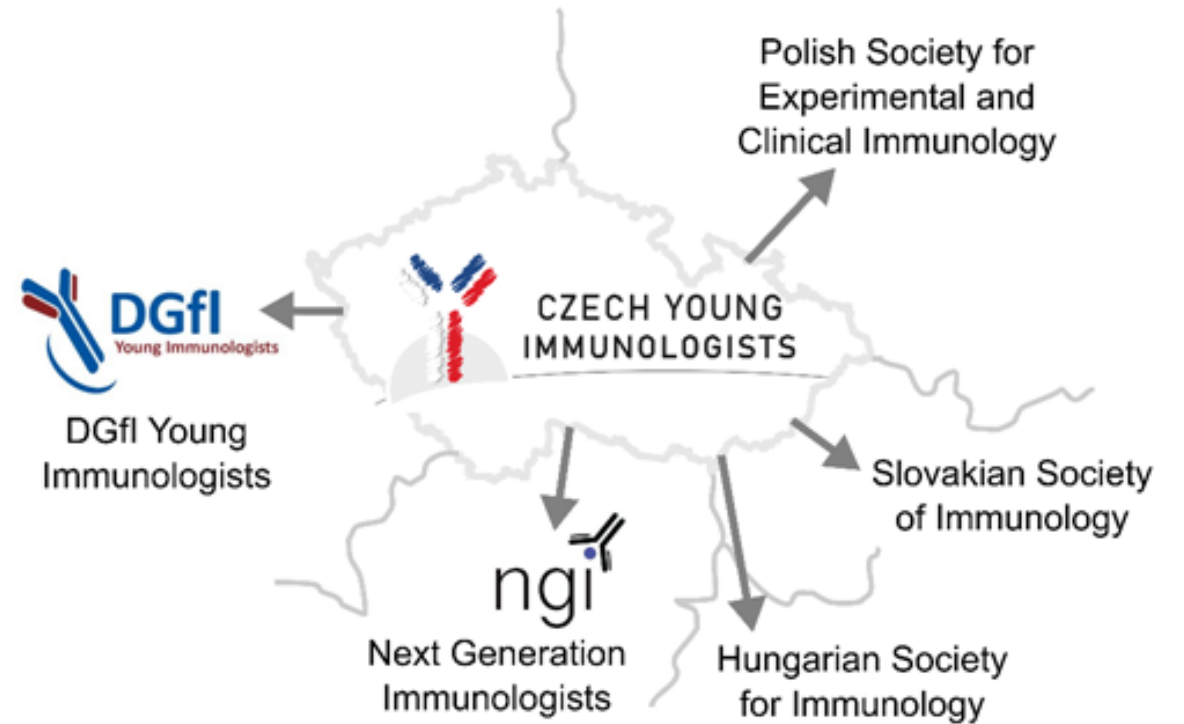
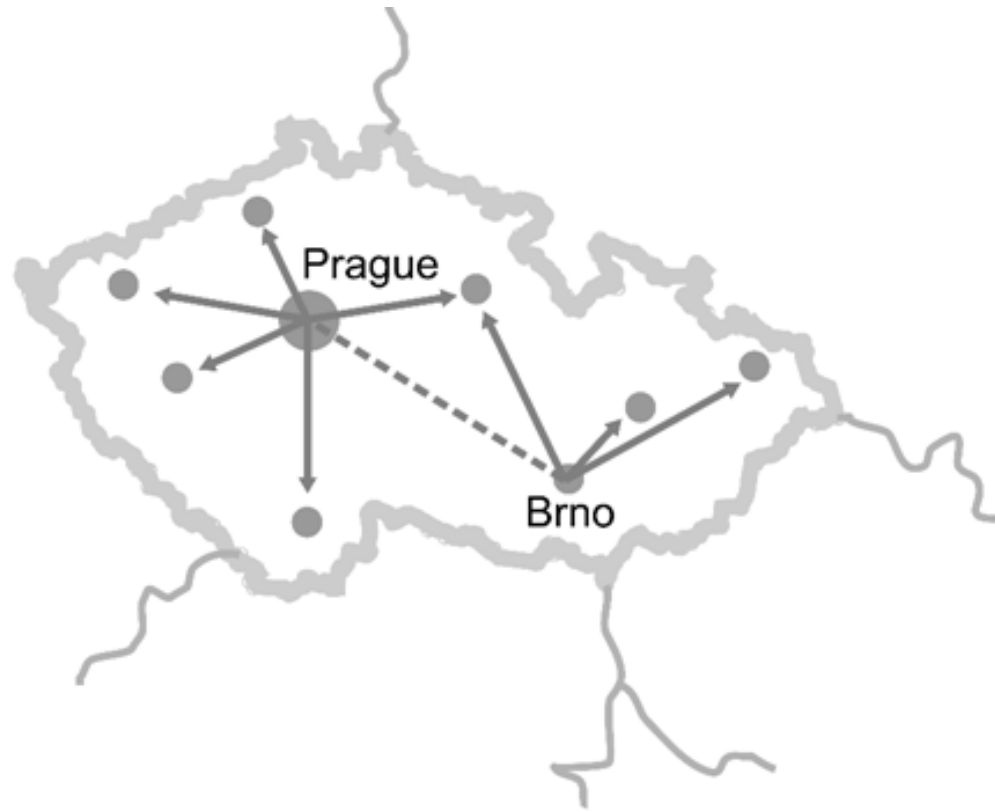
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# Czech Young Immunologists (CYI)

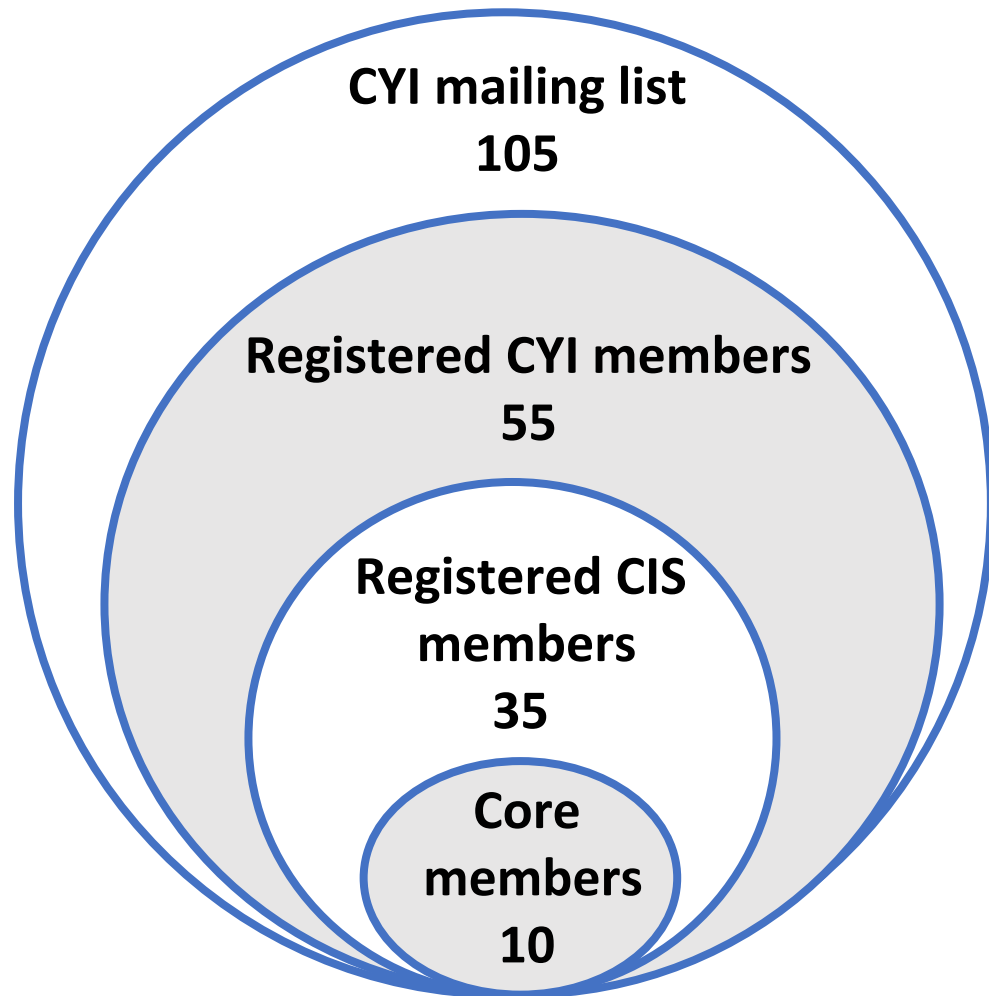
- Early career researchers
  - up to 10 years of research experience
- Established in June 2021
  - part of Czech Immunological Society (CIS)
- Part of yEFIS & EFIS



# Let's expand and connect!



# CYI members



+ 3 new core members from Brno

# CYI events

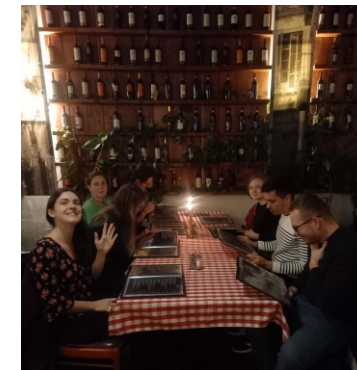
## In-person meetings

CYI Mixer (2022, 2023)  
 Outdoor weekend (2023)  
 T cell workshop (2021,2022)  
 CYI Mikulášská (2022)



## Shared travel to yEFIS symposium

20 young immunologists from CZ  
 Next yEFIS symposium 2024, Dublin



## Online meetings

Journal clubs  
 Working in a lab abroad  
 Work life balance  
 Scientific failures etc.



• **Mgr. Jiří Březina** - T cell central tolerance  
 Third year PhD student in the lab of Dr. Dominik Filipp will talk about the mechanism of antigen transfer within the network of thymic antigen presenting cells and his newest publication in eLife.

• platform - **Meet Google**  
<https://meet.google.com/npc-ehut-yyv>

• save the date **21.3.2022 17:00**  
 We look forward to seeing you!



• **Working in a lab abroad** - tips and tricks a brief survival guide  
 Experiences from pregraduate and postgraduate studies

• platform - **ZOOM**  
<https://uni-regensburg.zoom.us/j/65243860681>

• save the date **17.1.2022 17:00**  
 We look forward to seeing you!



## CYI Mixer

- Annual get-together on the occasion of International day of Immunology
- Lectures, panel discussion, networking



# Outdoor weekend



Czech Young Immunologists  
@CYImmunologists

Embracing the outdoors at #CYIWeekend! 🌞🌿  
What a refreshing change from the lab benches coming together for the CYI's 1st informal outdoor activity in the Moravský kras. A big thanks to all who joined in! Here's to more adventures 📷  
👏 #ScienceCommunity  
@immunsociety\_cz @y\_efis

10:18 AM · Aug 14, 2023 · 869 Views



# T cell workshop

- Annual workshop with lectures, hands-on sessions and networking



**T cell workshop**  
20-21.9.2022

## Scientific part - 20th of September 2022 (Kinosál FGÚ AVČR)

9:00 Registration

9:30 Opening ceremony  
Luca Vannucci

9:40 Organizational info  
Viktor Čemý + CYI team

9:50 Jan Dobeš  
Epithelial antigen presentation controls commensal-specific intraepithelial T cells in the gut

10:25 Helena Böhmová  
Roles of Aire+ILCs in the induction of Th17 response to *Candida albicans*

10:45 Riccardo Pasculli (Accela)  
Combining Live-cell imaging and full spectrum flow cytometry to advance immunology research

11:00 Coffee break

14:00 Klára Ruppová

Curation and integration of transcriptomic data for meta-analysis

14:20 Jan Pačes

You cannot hide: the story of light sheet fluorescence microscopy

14:40 Katarína Musilová (BD Czechia)

T cell exhaustion in single cell multi-omics

14:55 Patrik Pomazal (Bio-Port)

Presentation of the company Bio-Port Europe s.r.o.

15:10 Coffee break

15:55 Barbora Šmídová

The central nervous tissue as a battlefield: can parasites protect the host against multiple sclerosis?

# Mikulášská

- Informal meeting before Christmas
- Games, mulled wine, gifts, Christmas cookies



PLEASE SAVE THE DATE  
TO CELEBRATE OUR ANNUAL

## CYI MIKULÁŠSKÁ

JOIN US FOR  
FACS PANEL DESIGN GAME WITH BD (WITH PRIZES!)  
MULLED WINE, SNACKS AND CHRISTMAS VIBE

STARTING 2PM ON THURSDAY 07.12.2023

PRAGUE (TO BE SPECIFIED)

# Want to know more about CYI? Read our paper in EJI



News |  Free Access

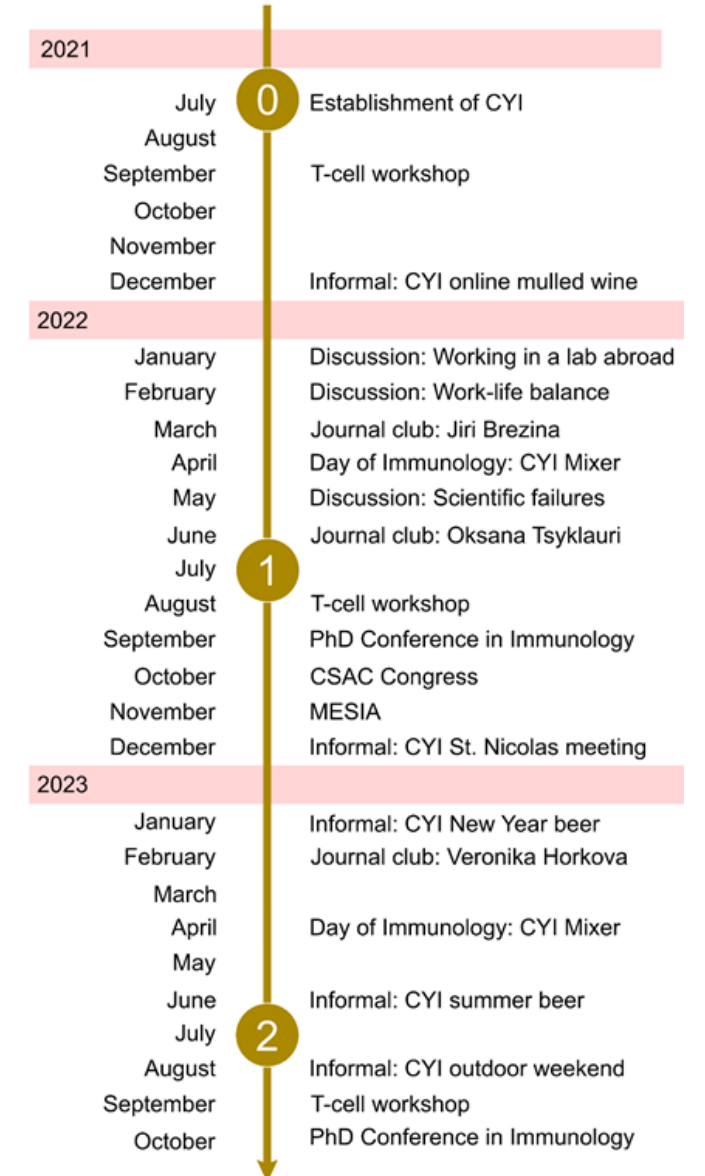
## Czech Young Immunologists: Bound by Science, United in Purpose

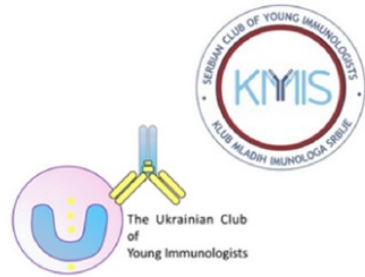
Sabina Vancikova, Iva Benešová, Viktor Černý, Petra Lázničková, Eliška Miková, Barbora Šmídová, Jan Věcek, Marco De Zuani, Veronika Niederlova 

First published: 28 September 2023 | <https://doi.org/10.1002/eji.202350737>



A







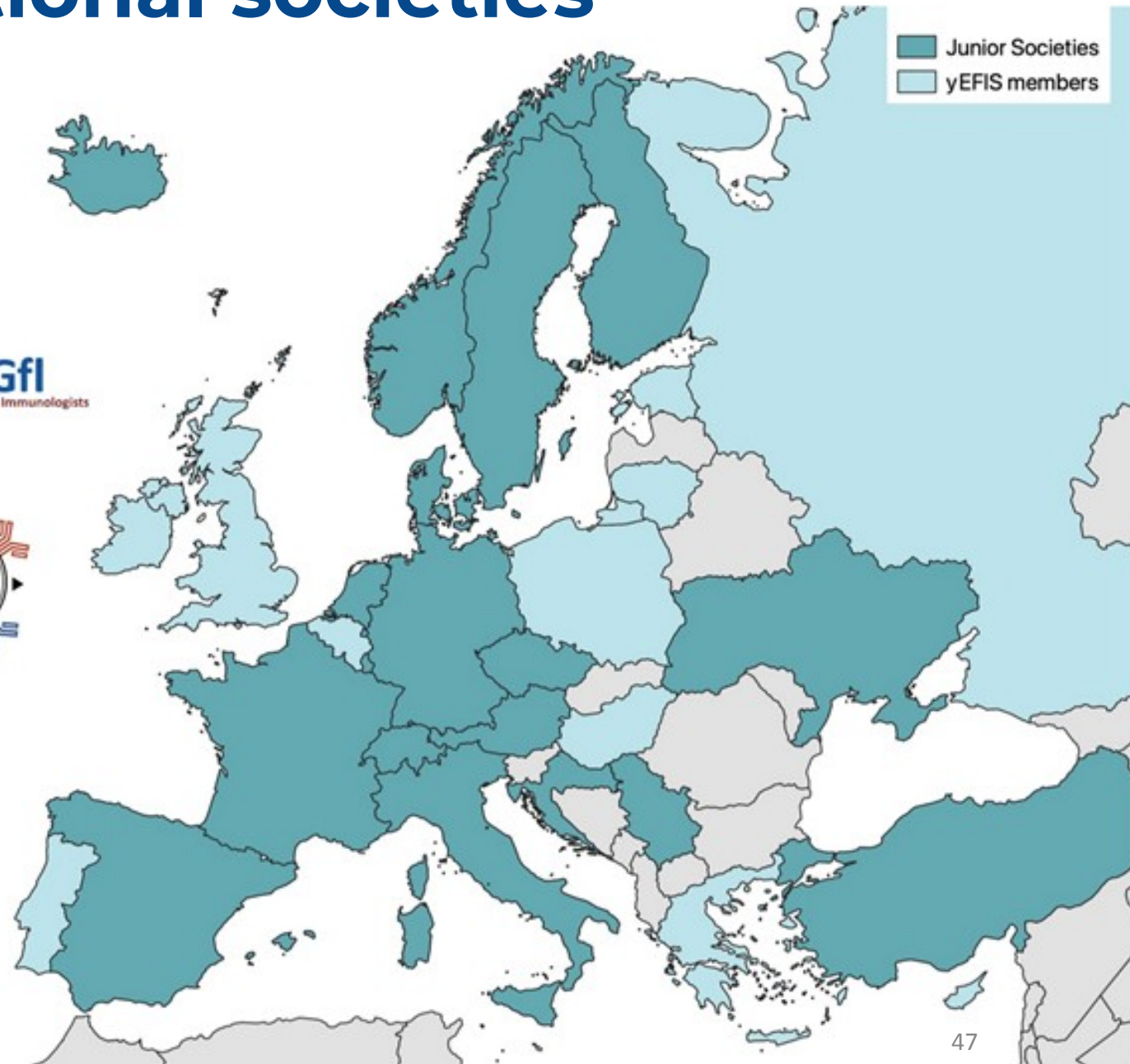
# yEFIS - Goals

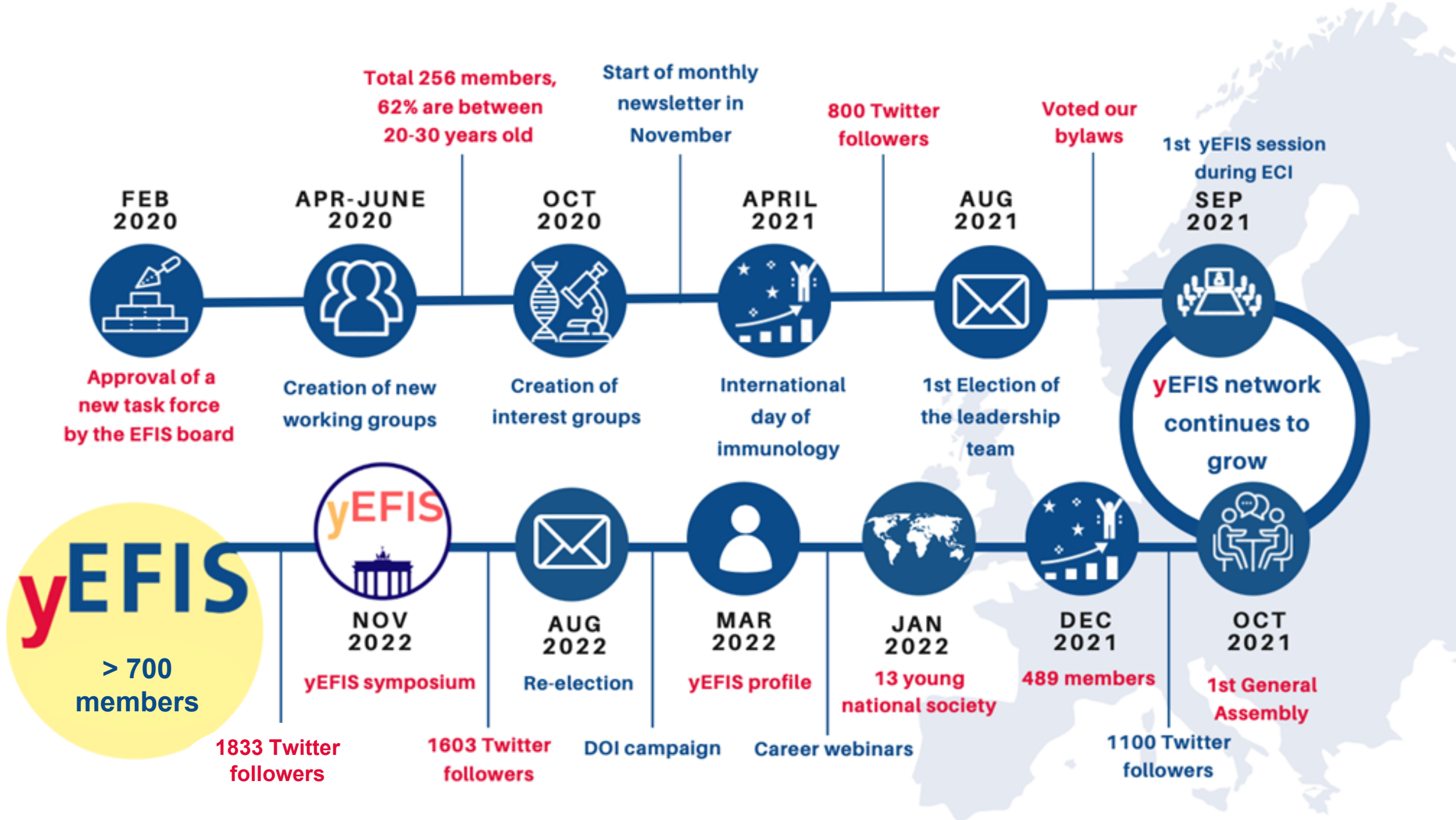
Represent all early career researchers (ECR) working on Immunology in Europe

**ECR = less than 10 years of working experience**

1. Promote national YI groups
1. Improve collaboration between YI
1. Bring visibility to YI:
  - International congresses
  - Promote their research
4. Connect YI and experienced scientists to shape the next generation of immunologists in Europe

# Young national societies







## Working Groups

European Journal of Immunology

Equity & Diversity

Career dev. & Education

Communication

yEFIS symposium

Mentoring

Mental health

New idea ?

yEFIS

## Interest Groups

Infectious diseases

Autoimmunity

Cancer Immunology

Immunometabolism

Mucosal Immunology

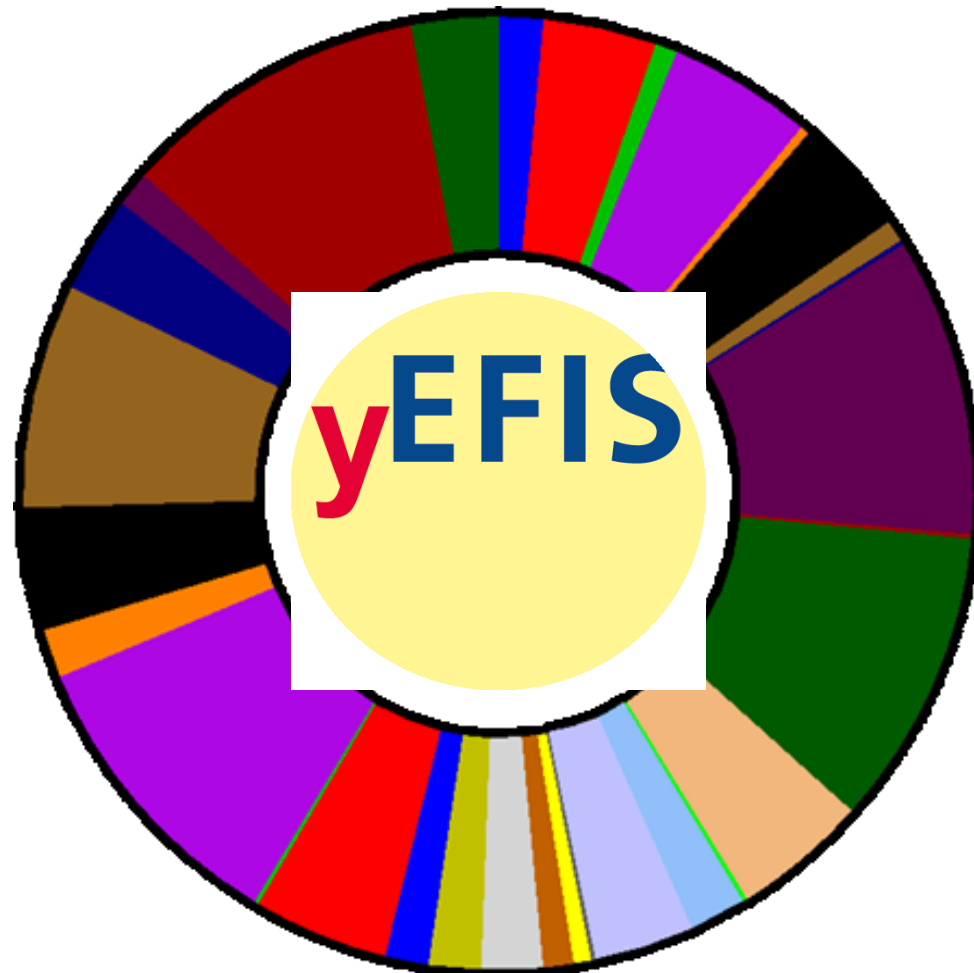
New idea ?

## Rep. of EFIS affiliated societies

+14 young national societies



# yEFIS - Network



10 Austria	1 Lithuania
26 Belgium	4 Luxembourg
5 Bosnia & Herzegovina	7 Norway
33 Croatia	14 Poland
2 Cyprus	12 Portugal
27 Czech Republic	10 Russia
5 Denmark	31 Serbia
1 Estonia	1 Slovakia
68 France	68 Spain
1 Georgia	11 Sweden
68 Germany	28 Switzerland
31 Greece	51 The Netherlands
1 Hungary	22 Turkey
13 Ireland	8 Ukraine
23 Italy	70 United Kingdom
	20 Outside europe

# Our future activities





# Want to be involved ?



@y\_efis



yEFIS



yefis@efis.org

Become a yEFIS member and subscribe to our newsletter < [www.yefis.org](http://www.yefis.org) >

Are you interested in representing and organising young immunologists in your country?

- ❖ **Join the YI Group of your country** → Don't have one yet? We will help you to create one!

Are you interested in working on specific projects at a European level?

- ❖ **Join an active Working Group, or suggest your own idea** and we'll support you to set it up

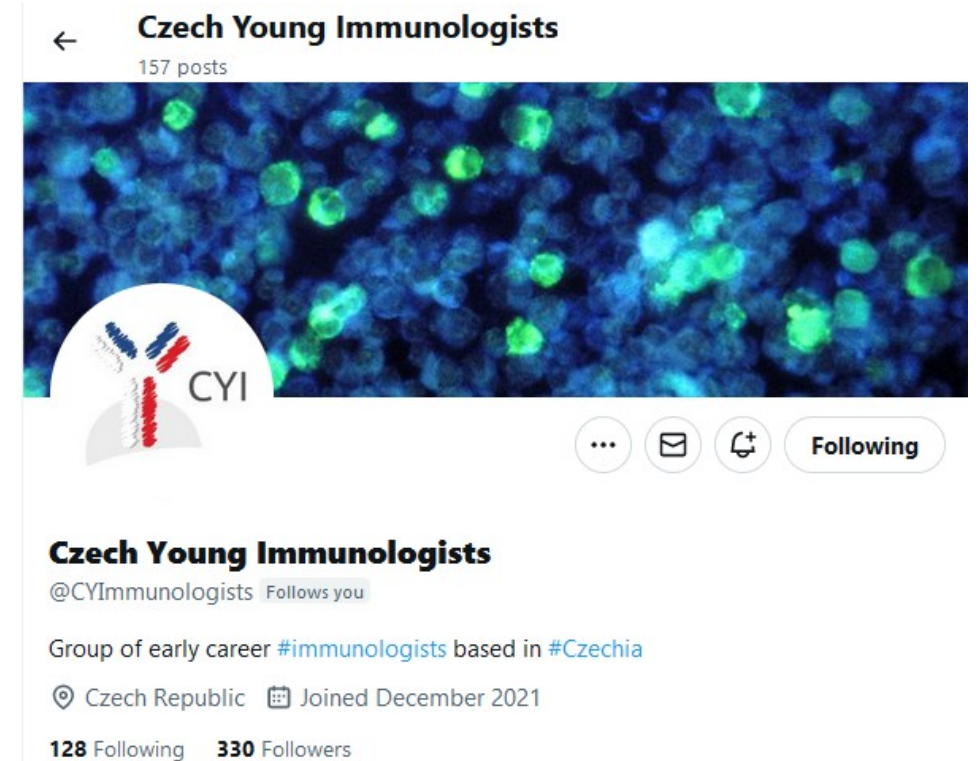


# CZECH YOUNG IMMUNOLOGISTS

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# Your next steps in CYI

1. Follow us on social networks
1. Subscribe to our newsletter
1. Become a member of CIS and yEFIS
1. Join us in our future events:
  - 12.10.** - online seminar Jan Věcek
  - 25.10.** - online discussion after Global Immunotalks (Jenny Mjosberg)
  - 30.11.** - online seminar Srdjan Grusanovic
  - 7.12.** - St. Nicolas Christmas party





# Mentimeter

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# How can you participate?



<https://tinyurl.com/becomecyi>

