



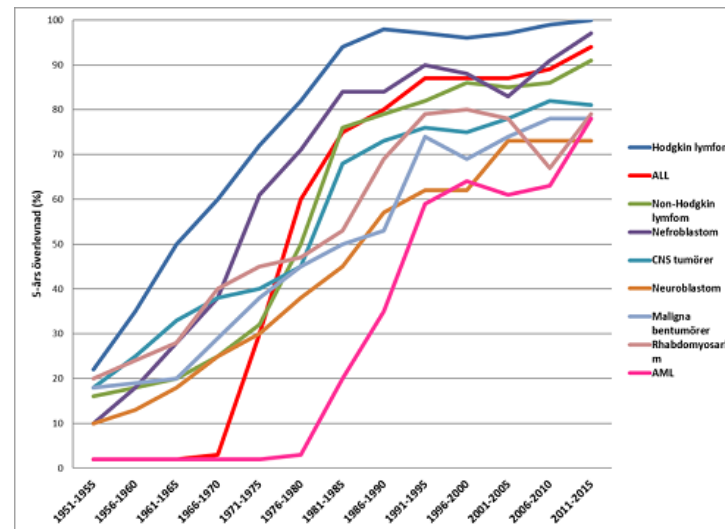
The Swedish Childhood Tumor Biobank

- A national sample collection and genomic characterization initiative of pediatric solid tumors for research purpose

Johanna Sandgren, PhD

Pediatric cancer

- In Sweden ~340 children are diagnosed with cancer yearly (1/3 leukemias, 2/3 solid tumours)
- Today more than 85% survive
- Still major cause of disease- related death
- Several diagnosis -"survival plateau"
- The survivors often suffer from sequelae
- Childhood tumours differ from adult
 - Different biological origin (development)
 - Much less genetic aberrations
 - Less interaction with immune response



Källa: Svenska Barncancerregistret (SBCR)



More research on these malignancies needed

The Swedish Childhood Tumor Biobank

- Aims and purpose



- Research and health care oriented biobank infrastructure, situated at Karolinska Institutet
- National sample collection for pediatric solid fresh frozen tumours, established at Karolinska University Hospital
- Genomic characterization of the biological specimens
- Distribution of samples and generated data to authorized researchers
- National resource fully funded by the Swedish Childhood Cancer Fund
- Support research to increase the understanding of childhood tumors leading to enhanced survival and quality of life for affected children



National sample collection, analysis and services



Barntumörbanken

- Registration (LabWareLIMS SMB), preparation and storage of samples
- Molecular genetic/genomic analysis:
 - WGS
 - RNA-seq/WTS
 - Methylation arrays
- Bioinformatic pipelines: "Sarek" for WGS, RNA-var/fusion (collaboration with **SciLifeLab/NGI**)
- Service to clinical trials/Collaborate with researcher
- Sample and genomic data access: formal process for research projects with ethical permit

Six Swedish University Hospitals

Pediatric Oncology

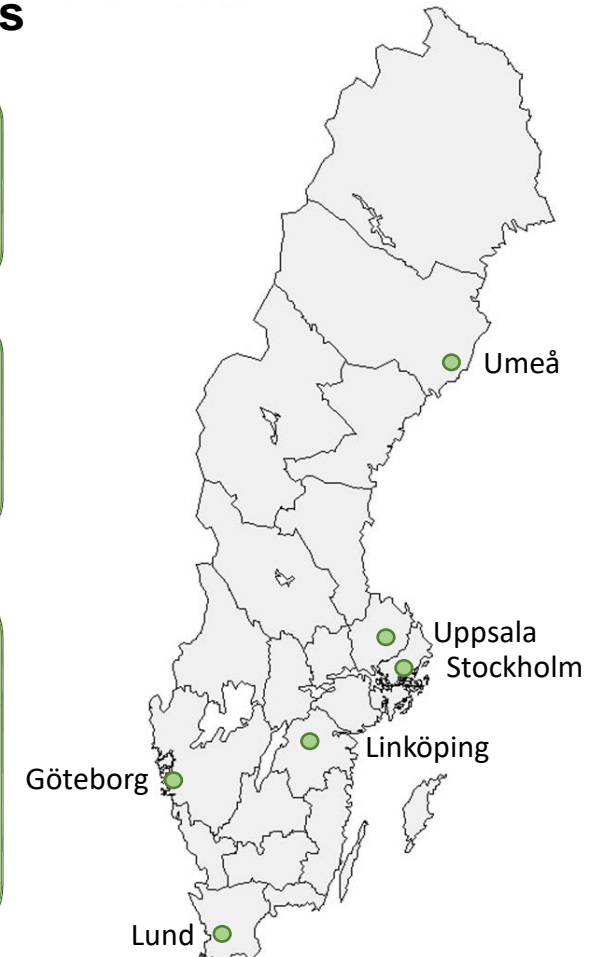
Patient consent
Blood: child and parents

Neurosurgery/Surgery

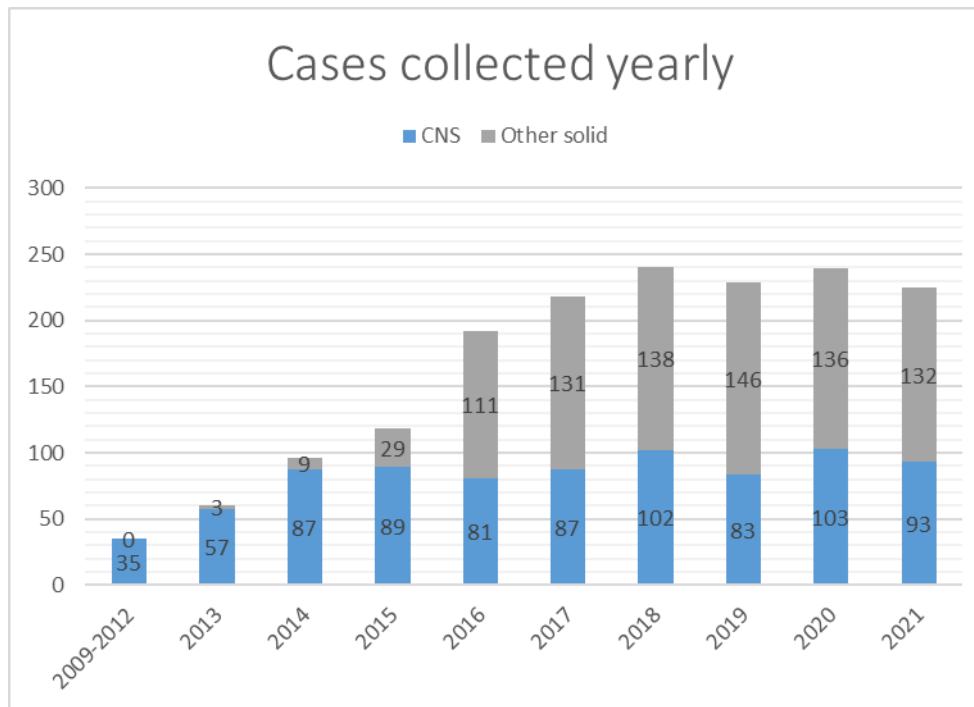
Tumor tissue
Normal reference tissue
Blood: child

Pathology/Cytology

Tumor sample (surplus material): Frozen, FFPE, Fresh (cells)
PAD-referral with diagnosis
H&E section
Cerebrospinal fluid (CSF)



The sample collection



Barntumörbanken (BTB) receives informed consent and biobank sample from almost 90% of the children with a solid tumor in Sweden

Status 2022-07-27:

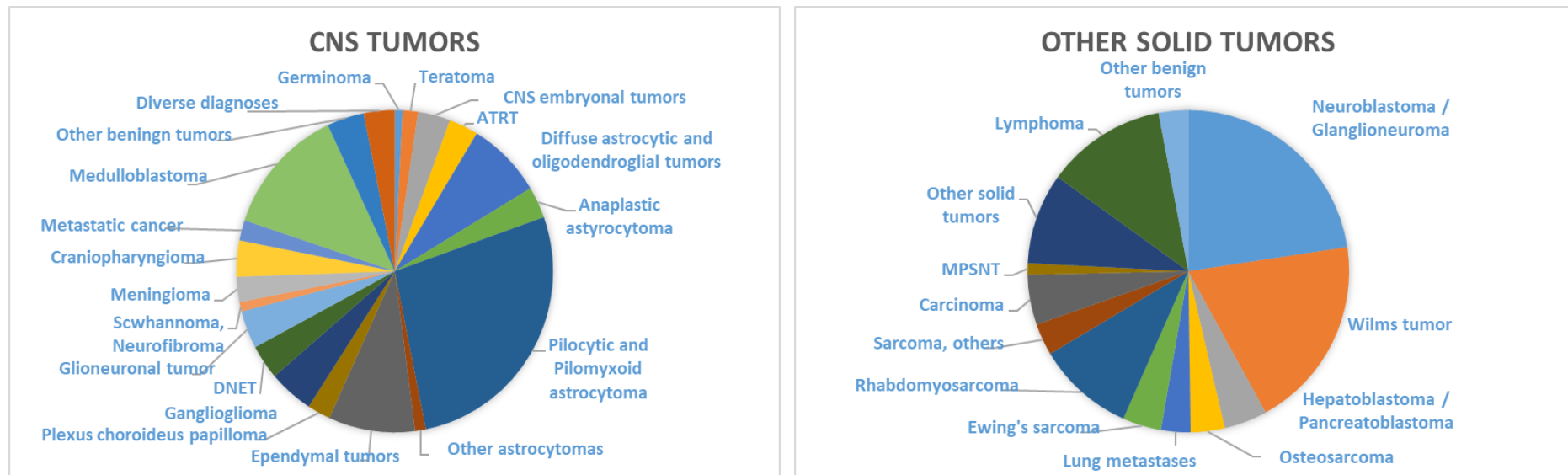
From (center)	No. of cases
Stockholm	506
Göteborg	401
Lund	294
Linköping	161
Uppsala	361
Umeå	102
Total:	1825
Paired blood and tumour cases:	1161

The sample collection

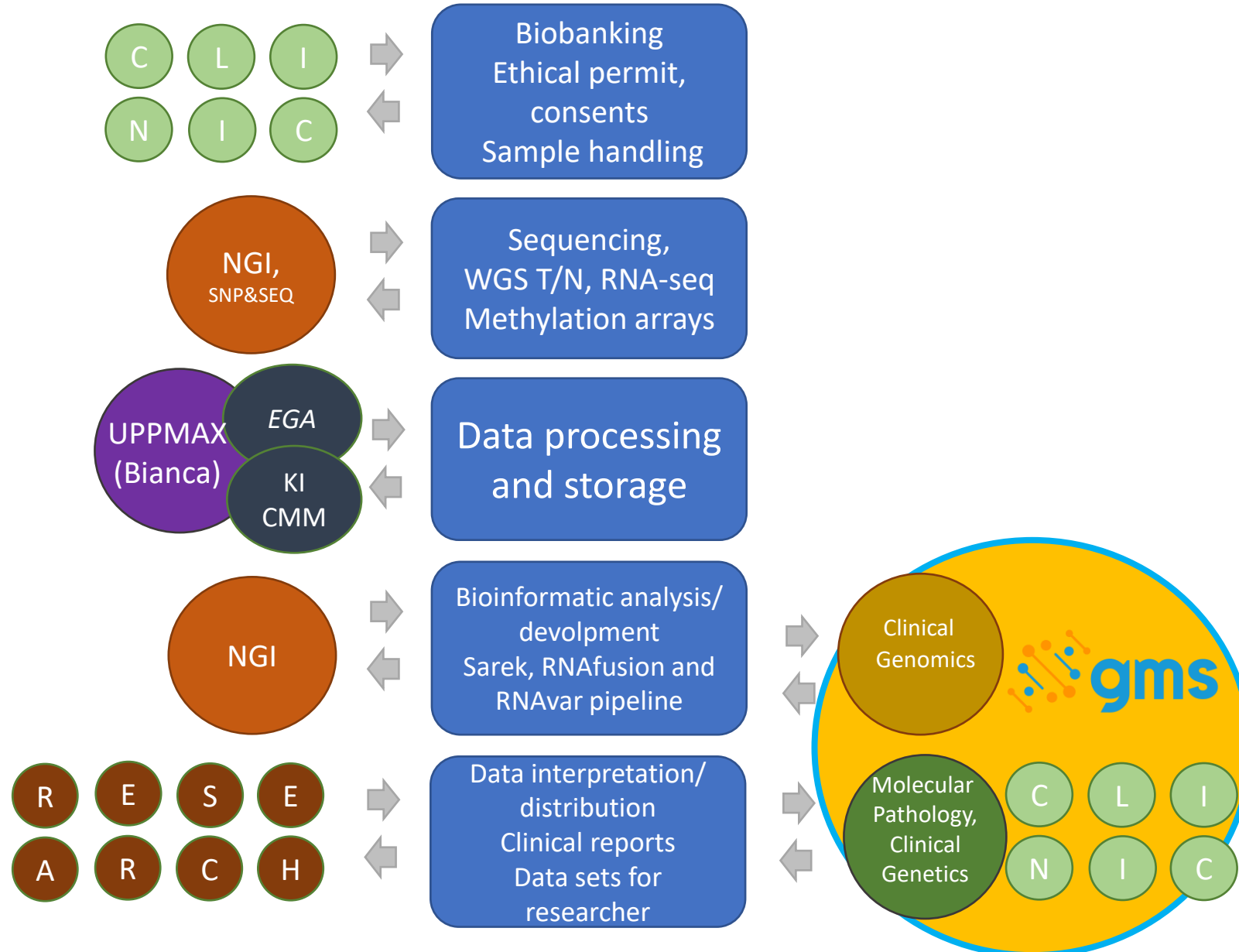
- Total number of samples 2022-08-19
22 878
- Total number of DNA/RNA aliquotes 2022-08-19, from a fraction of the tumor and blood samples:
20 464

- The sample collection contains:
- fresh frozen solid tumors and patient-matched blood samples
 - some CSF, FFPE, imprints, HE-slides and isolated viable tumor cells
 - for most cases blood samples from the patients' parents
 - approximate 25 CNS reference cases

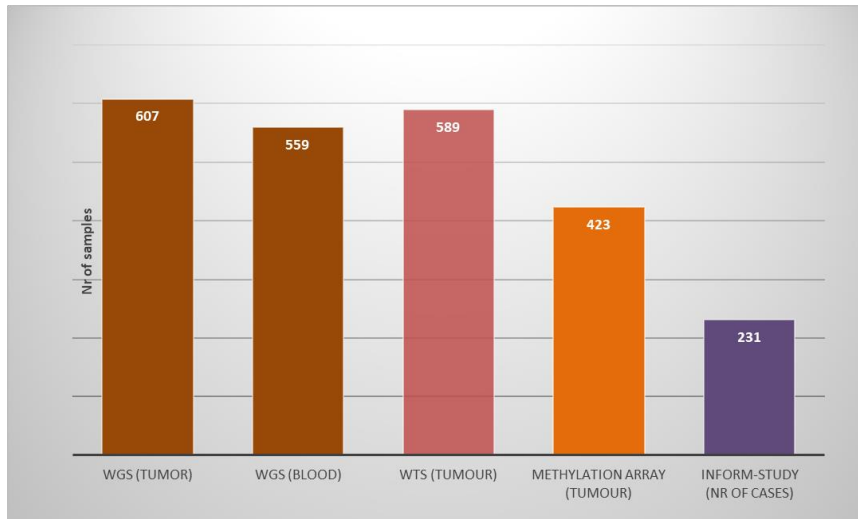
Population based sample collection of solid tumors in children



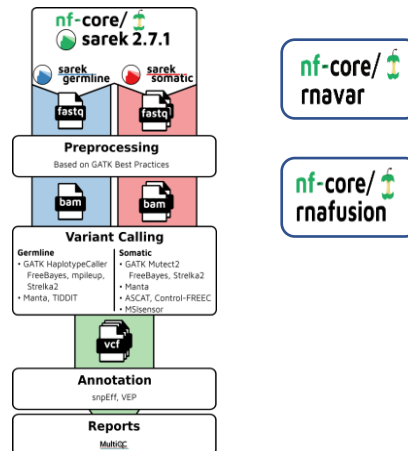
Genomic analysis program



The generated analysis data, until august 2022



- Matching tumor and normal samples derived DNA to whole genome sequencing (WGS)
- Tumor samples are also analyzed by RNA-sequencing (WTS)
- CNS-tumors are profiled by methylation arrays
- Samples submitted to clinical study INFORM for molecular/genetic analysis
- The epigenomic and genomic analyses are performed at **SciLifeLab/Uppmax and BTBs server**



Six centers: Umeå, Stockholm, Göteborg, Uppsala, Lund, Linköping



Barntumörbanken (KI/K)

Monica Nistér, KI, K

Gustaf Ljungman, UU, UAS

Teresita Díaz de Ståhl, KI

Maxime Garcia, KI

Praveen Raj, KI

Gabriela Prochazka, KI

Katarzyna Zielinska-Chomej, KI

Karim Katkhada and Athar Maty, KI

Jenny von Salomé, KI

Elisa Basmaci, KI

Johanna Sandgren, KI, K (Enhetschef/Director BTB)

Pathologists (K): Alia Shamikh, **Christopher Illies (Psa BTB)**, Sandra Wessman et al

BTB Scientific prioritization committee: Susan Pfeifer (UU), Maréne Landström(UmU), Beatrice Melin (UmU), Fredrik Mertens (LU), Catharina Larsson (KI)

BTB steering group



Phil Ewels, Max Käller (NGI)

Joakim Lundberg (NGI)

Björn Nystedt, Markus Mayrhofer (NBIS)

Valtteri Wirta (CG/GMS)

Richard Rosenquist, David Gisselsson Nord (GMS)





Barntumörbanken Symposium 2022

1-2 DECEMBER 2022 | STOCKHOLM, SWEDEN

[Welcome](#) [Programme](#) [Abstracts](#) [Organisers](#) [Registration](#) [Practical Information](#) [Contact](#)

Welcome

We are pleased to invite you to Barntumörbanken Symposium 2022, arranged in Stockholm on the first and second of December.

Focus areas for the conference are paediatric cancer, human biobanking, large scale sequencing and precision cancer medicine. Welcome to meet and listen to scientific experts as well as network with colleagues and representatives from healthcare, academia and industry.

The confirmed invited speakers are: Eric Bouffet, Cynthia Hawkins, Olaf Witt, Andreas von Deimling, Jinghui Zhang, Richard Rosenquist Brandell, Joakim Lundeberg, Ann Nordgren, David Gisselsson-Nord, Tobias Sjöblom, Sonja Eaker Fält, Tuuli Lappalainen, Monica Cheng Munthe, Fredrik Swartling, Ninib Baryawno och Emma Tham.

The symposium is initiated by The Swedish Childhood Tumor Biobank (Barntumörbanken in Swedish).

Contact

For questions regarding the scientific programme, please contact Johanna Sandgren:
johanna.sandgren@ki.se

For questions regarding registration, please contact the conference administration secretariat, Academic Conferences:
btbsymposium@akademikonferens.se

For questions and support regarding abstract submission, please contact the conference administration secretariat, Academic Conferences:
btbsymposium@akademikonferens.se



Important dates

5 Sep 2022
Abstract submission opens

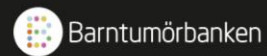
3 Oct 2022
Deadline abstract submission

17 Oct 2022
Notification of acceptance

18 Nov 2022
Registration closes

1-2 Dec 2022
Barntumörbanken Symposium

Organised by



<https://www.btbsymposium2022.se/>

Thank you for the attention!

<https://ki.se/forskning/barntumorbanken>

johanna.sandgren@ki.se