

Who am I?



Universitätsklinikum
Leipzig
Medizin ist unsere Berufung.

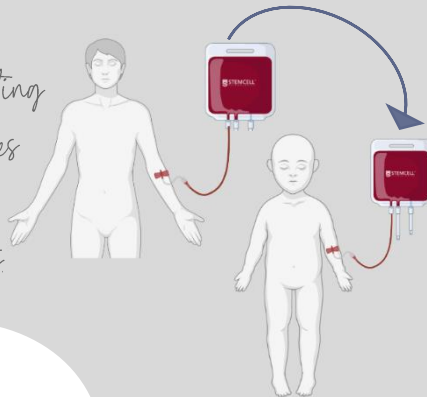
P-CancG-022
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DONOR DNA

IN PATIENTS AFTER STEM CELL TRANSPLANTATION

Several diseases like leukemia or metabolic disorders of the hematopoietic system require a stem cell transplantation. In Germany, 3.500 persons per year receive a stem cell transplantation to restore bone marrow function, resulting in a chimerism.

Due to the genetic chimerism germline testing based on blood samples cannot be done in transplanted patients.



Presence of donor derived DNA in buccal swabs and nails of stem cell recipients has previously been documented (Thiede et al. 2000; Imanishi et al. 2007). Crain et al. 2005 even detected donor-derived chimerism in **brain** cells.

Aim: provide guidance for germline testing after stem cell transplantation.

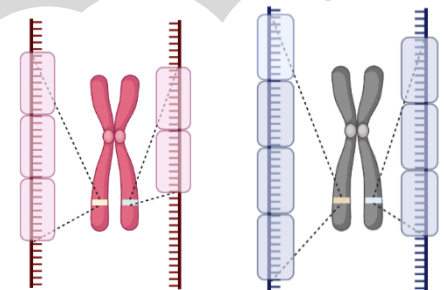
Methods

Short Tandem Repeat (STR) assay

containing 28 STR markers (custom-made) followed by capillary electrophoresis

NGS-RC-PCR-based SNP assay

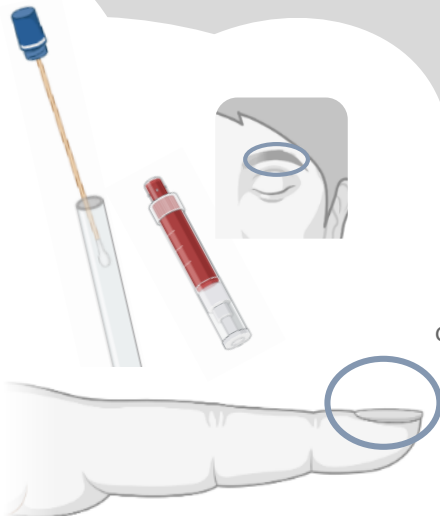
including 34 Loci (Nimagen)

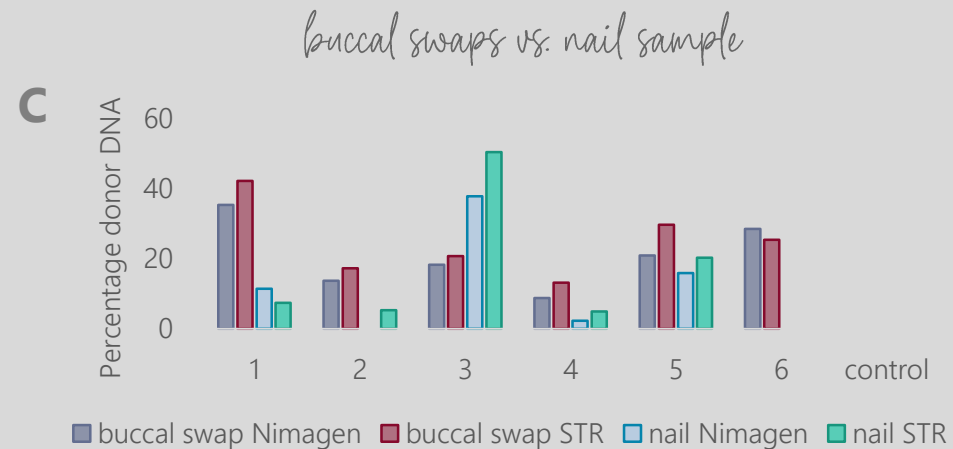
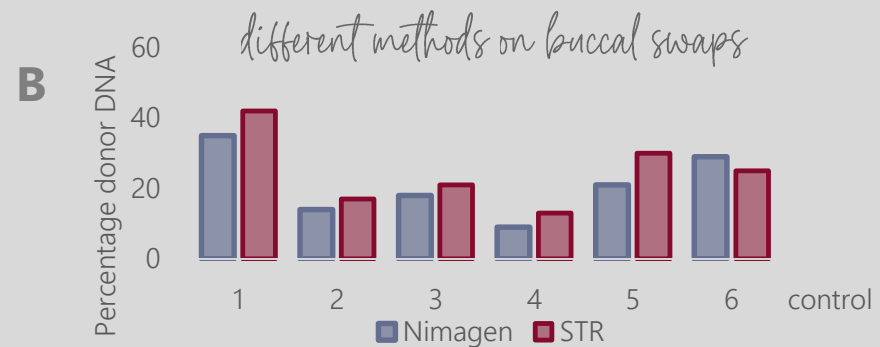
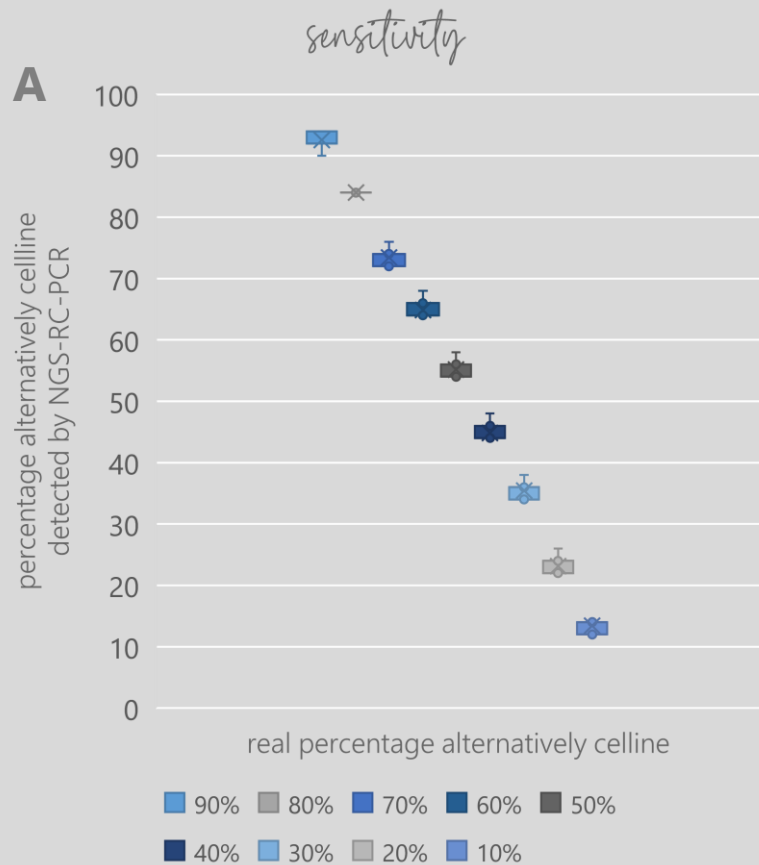


Short Tandem Repeat (STR) assay



NGS-RC-PCR-based SNP-assay





We are searching for probands!

Results

We are able to detect chimerism down to less than 10 % (Fig. A). STR and Nimagen in 6 patients and one control (autologous Tx) display similar results in buccal swaps (Fig. B). Detected donor DNA proportion varies between 11% and 39 % and between 11 % and 44 % in the buccal swaps and nail samples, respectively (Fig. C).

! We can't recommend using buccal swap to perform germline testing after stem cell transplantation !

Future

- additional patients
- additional tissue types like
 - follicular hair cells
- investigate how the donor DNA proportion varies over time

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 or visit our project page at:
<https://www.uniklinikum-leipzig.de/einrichtungen/humangenetik/forschung/chimärismus>