UNIVERSITÄT LEIPZIG

Medizinische Fakultät

Universitätsklinikum Leipzig

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Who am I?

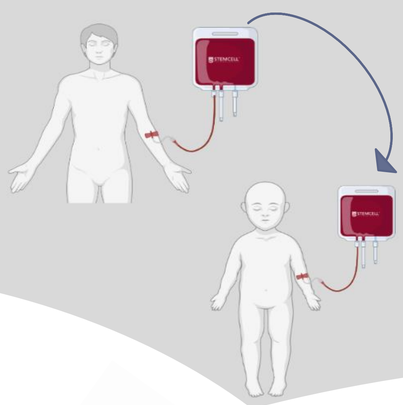
DONOR DNA IN PATIENTS AFTER STEM CELL TRANSPLANTATION

P17.013.C - M. Mertens, M. Sadlo, J.S. Kühl, L. Zschenderlein, J. Hentschel,
mareike.mertens@medizin.uni-leipzig.de, Institut für Humangenetik Leipzig

Background

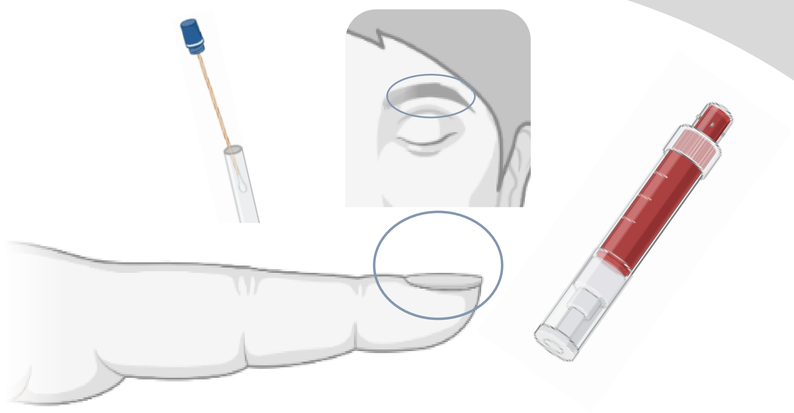
Several diseases like leukemia or metabolic disorders of the hematopoietic system require a stem cell transplantation. In Germany, 3.500 persons per year receive a stem cell transplantation resulting in a chimerism.

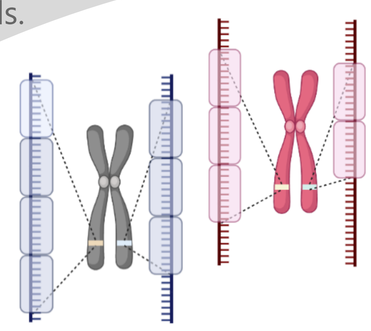
Due to the genetic chimerism germline testing based on blood samples ***cannot be done*** *in transplanted patients.*



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.





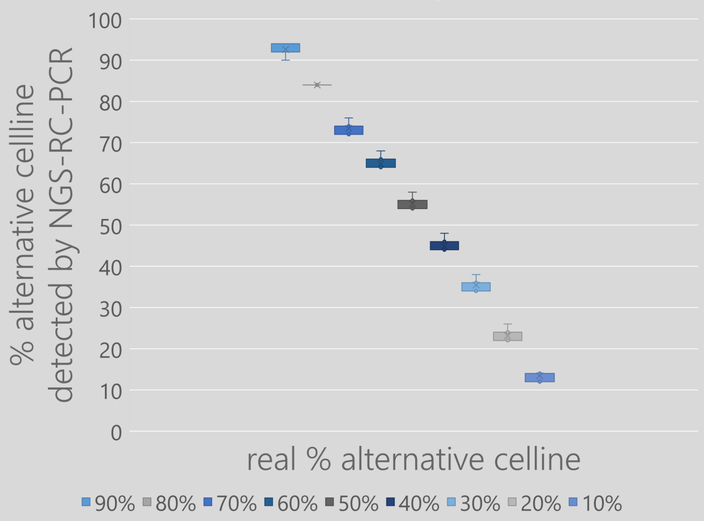
Methods

Short Tandem Repeat (STR) assay
containing 28 STR markers (custom-made) followed by capillary electrophoresis

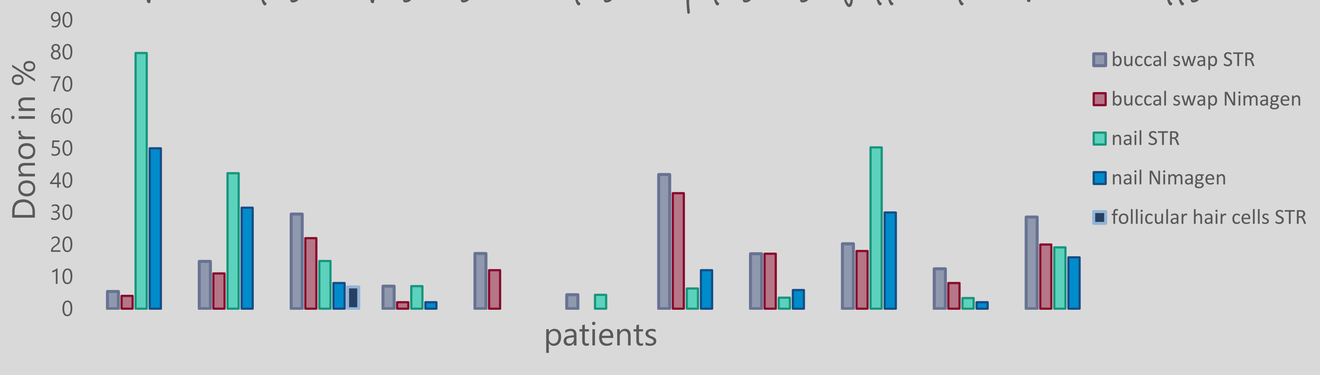
NGS-RC-PCR-based SNP assay
including 34 Loci (Nimagen)

Resultts

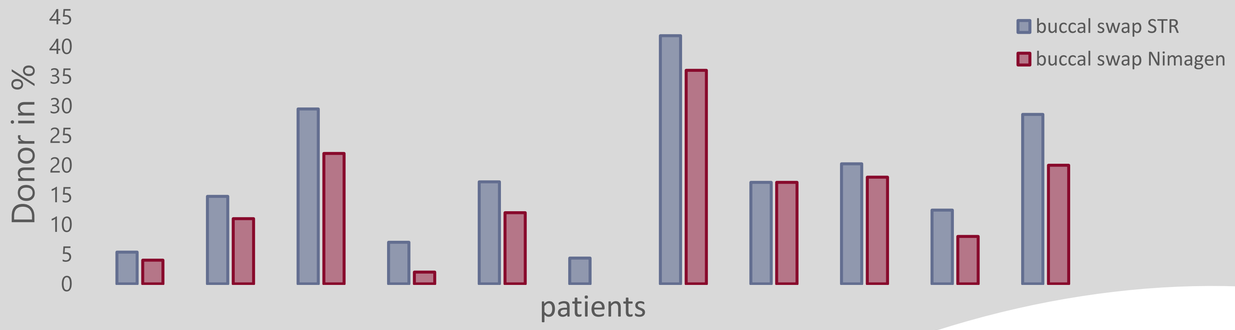
A *sensitivity*



B *buccal swabs vs. nail samples vs. follicular hair cells*



C *different methods on buccal swabs*



Discussion

We are able to

- detect chimerism down to less than 10 % (Fig. A).
- show that donor derived DNA proportion varies between 0 % and 41 % and between 0 % and 79 % in the buccal swabs and nail samples, respectively (Fig. C).
- detect donor derived DNA in follicular hair cells.

Future

- additional patients
- donor DNA proportion depending on time and other factors
- technical replicates

! We recommend using more than one tissue sample to perform germline testing after stem cell transplantation !

For more details please contact us: mareike.mertens@medizin.uni-leipzig.de
or contact us at the Corporate Satellite on Sunday 14:15-15:45 location: 2.32 & – 2.33, level -2

We are searching for probands!