Patients with 22q11del syndrome (also called Velo-Cardio-Facial-Syndrome, VCFS or DiGeorge Syndrome) represent a high risk population for schizophrenia with a 30% incidence of developing the disease in adulthood.

This high incidence is most likely linked to a partial chromosomal deletion. Depending on the size of the 22q11.2 deletion of 1.5 kbp, resp. 3 kbp, there are 20, resp. 30, genes deleted from one of the two chromosomes. It has been reported that variations of the nucleotide sequence in six of the 20 genes are associated with schizophrenia: COMT, PRODH, UFD1L, TBX1, KIAA1292ZNF and Nogo-R.

In this study we investigate the changes in brain white matter in 22q11del syndrome subjects in comparison to healthy participants.

**MATERIALS AND METHODS**

DTI scans were acquired from 9 patients with reconfirmed chromosomal deletion of the region 22q11 and from 9 matched healthy subjects. Diffusion weighted scans were performed on a 1.5 Tesla GE (General Electric Medical Systems) scanner.

Image processing and statistics: Fractional Anisotropy (FA) data, a measure of water diffusivity and brain connectivity, was generated by tensor estimation of the diffusion weighted images using Slicer3 software (http://www.slicer.org/). Voxel-based comparisons of FA were performed using TBSS (Tract-Based Spatial Statistics) software (http://www.fmrib.ox.ac.uk/fsl/tbss/index.html).

Statistics: A permutation-based inference tool for nonparametric statistics was used and a two sample t-test was conducted for all voxel-wise group comparisons using a threshold-free cluster enhancement method. The number of permutations was set at 5000, and the significance level was set at Family-Wise Error (FWE) corrected \( p < 0.05 \).

The tracts of the regions of reduction were identified by using John Hopkins University White-Matter Tractography Atlas, which is incorporated in the TBSS software.