

# The establishment of a biobank: Experiences of the Netherlands Twin Register

G. Willemsen, J. Klaren, A. van Bruggen, C. Hoekstra, D. Posthuma, E. Mulder,  
P. Meyer, C. Kluft, E. De Geus, and D. Boomsma

## Participant selection

- From the NTR longitudinal database (>20.000 adult twins and family members) informative families for linkage and association studies of migraine, height, BMI, blood pressure, lipid profile and DZ twinning were selected.
- When an informative pair (DZ twins and/or siblings) was identified, all registered family members (parents, additional siblings, including MZ twins) were invited to take part.
- Spouses of twins were also invited when phenotypic information was available.

► More than **10.000 persons** are selected.

## Procedure

- Selected participants receive an invitation for the study, followed by one or more telephone calls.
- Participants are visited at home (or at work) for fasting blood sampling between 07:00 and 10:00 a.m.
- Additional phenotypic information is collected during the phone call and the home visit (e.g. BMI).
- Blood and urine samples are brought to the central laboratory in Leiden before 12:00.

## Measurements

- Direct: lipid profile, haematology, CRP, glucose, insulin, HbA1c
- Later: genotyping, RNA expression, cell lines, proteomics, metabolomics

## First results

Table 1. Participation rates

	N	
Invitation letter sent	1906	
Reached by phone	1447	76% of invited
Willing to participate	1001	53% of invited, 69% of reached
Blood sample collected	810	



Table 2. Correlations of lipid profile parameters with age and BMI (N=476)

	Age	BMI
Total cholesterol	.346	.107
LDL	.286	.121
HDL	.134	-.278
Triglyceriden	.106	.038

Table 3. Twin and parents-offspring correlations for lipid profile parameters (unadjusted/adjusted for age) (N=43 MZ twin pairs, 29 DZ twin pairs, 292 parent-offspring pairs)

	MZ	DZ	Parent-offspring
Total cholesterol	.542/.418	.492/.488	.187/.177
LDL	.531/.444	.278/.318	.137/.115
HDL	.589/.593	.508/.540	.144/.142
Triglyceriden	.348/.345	-.055/-.069	.033/.055

## Conclusions

The present study design provides a feasible approach for large scale sampling of biological materials. Initial participation rates are promising.

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