



InterAct Bulletin – Winter 2014

The latest news from the **InterAct Consortium**

This bulletin is to keep you up to date with InterAct, a collaboration initially funded by the EU FP6 programme which is continuing to discover how genetic and lifestyle factors interact in their influence on the risk of developing type 2 diabetes. It is emailed to all users of the InterAct extranet. Please forward to colleagues who may be interested.

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Recent publications

The following are papers from the InterAct project that have been published in the last three months:

- [Dietary intakes of individual flavanols and flavonols are inversely associated with incident type 2 diabetes in European populations](#)
- [Non-invasive risk scores for prediction of type 2 diabetes \(EPIC-InterAct\): a validation of existing models](#)
- [Adherence to predefined dietary patterns and incident type 2 diabetes in European populations: EPIC-InterAct Study](#)
- [Dietary vitamin D intake and risk of type 2 diabetes in the European Prospective Investigation into Cancer and Nutrition: the EPIC-InterAct study](#)
- [The association between dietary flavonoid and lignan intakes and incident type 2 diabetes in European populations: the EPIC-InterAct study](#)
- [Age at menarche and type 2 diabetes risk: the EPIC-InterAct study](#)

For all InterAct core publications, visit the [InterAct website](#).

InterAct also featured at the EASD meeting in September 2013, with a presentation in the Nutritional Epidemiology Symposium entitled “Food and nutrition in relation to the development of type 2 diabetes: insights from the EPIC-InterAct study”.

New measurements

Core exome data is now available on both the incident type 2 diabetes cases and the random sub-cohort.



We have around 384,000 measured and 21,000,000 imputed SNPs from the Illumina Core Exome chip on 7397 participants from the InterAct metabochip set, comprising 2796 cases and 4,601 non-cases in the subcohort.

To request updates to existing datasets, contact [Nicola Kerrison](#). To request new data releases, please use the standard extranet procedure. Additional funding has been secured from the Medical

Research Council to extend the measurements to include vitamin D, C and carotenoids and to enable lipidomics, metabolomics and methylation chip analyses. The profile of InterAct measurements that are currently available, underway or are funded are summarised below.

	Incident T2DM cases	Random sub-cohort
	12,403	16,835
Baseline questionnaires	Available	Available
Core baseline biochemistry	Available	Available
GWAS	Available	Available
Metabochip	Available	Available
Core exome chip	Newly available	Newly available
Plasma phospholipid fatty acid profile	Available	Available
Vitamin D, C and carotenoids	Underway - plan to complete 2014	Underway - plan to complete 2014
Lipidomics	Funded	Funded
Metabolomics	Funded	Funded
Methylation chip	Underway - plan to complete 2014	Underway - plan to complete 2014

The work in establishing the InterAct study nested within EPIC-Europe has opened up opportunities for synergistic research on chronic disease endpoints other than diabetes with the same random sub-cohort being used for the EPIC-Heart and EPIC CVD projects which focus on coronary disease and stroke. The EPIC-Heart and EPIC-CVD projects have either completed or are seeking to complete the same measurements to develop a comprehensive and comparable dataset across all three diseases. To find out more about these projects, visit the EPIC-CVD website. While the focus to date has been on diabetes, coronary disease and stroke, this approach and the value of a common random sub-cohort is applicable to other diseases. Work is underway at Imperial College on neurodegenerative diseases, including Alzheimer's disease and Parkinson's disease.

Spring consortium meeting



We plan to hold an InterAct consortium meeting in the Spring of 2014 in Cambridge, UK. The date is being coordinated with the EPIC Heart and EPIC CVD meetings to facilitate travel. Further information will follow in due course.

Facilitating cross-cohort collaboration – InterConnect



An EU FP7 grant has been awarded for InterConnect, a project to create the foundation for research to explain the differences in the risk of diabetes and obesity

between populations and, in particular, what explains excess risk of diabetes in high risk populations. There are many individual cross-sectional and prospective cohort studies that have already been undertaken in specific populations that could provide the basis for studying cross-cohort variation but mechanisms for sharing individual level data are limited by major governance, ethical and legal challenges. The InterConnect project seeks to establish new mechanisms for cross-cohort analyses on a sustainable basis by providing tools and processes in three key areas:

- Developing and populating an online registry of studies with linkage to study-level meta-data to enable researchers to know what resources are available globally, what study design was used, which populations were recruited and what data and samples are available
- Creating methods for harmonising methods and data between studies identified through the registry
- Establishing systems for federated analysis, building on the work of the linked FP7-funded BioSHaRE project and the DataSHIELD tool. Individual participant data is held on local servers controlled by the cohorts and an analysis computer conducts a remote analysis by sending analytical commands to request each geographically-dispersed local server to undertake a particular analysis and to return non-identifiable summary statistics (results). The efforts of each cohort are focused on a one-off activity to prepare the data and establish the necessary IT infrastructure which then enables secure access for multiple analyses, providing a scalable and sustainable process for cross-cohort collaboration

For further information, visit the [InterConnect website](#).

About InterAct

The InterAct project was funded by the EU FP6 programme (2006 to 2011) to discover how genetic and lifestyle behavioural factors, particularly diet and physical activity, interact in their influence on the risk of developing type 2 diabetes and to investigate how these discoveries may help to prevent the development of diabetes.

The consortium set up a large case-cohort study of diabetes incidence nested within the existing large multi-centre cohort 'EPIC' (European Prospective Investigation into Cancer & Nutrition) which includes 350,000 participants from 10 European countries.

The project continues to be a large scale and active collaboration between consortium members. Expansion of the dataset, analyses and publications are on-going. Consortium members can submit analysis proposals and requests for data releases via the [extranet facility](#).

This newsletter is sent from the InterAct Coordinating Committee. Please contact **Signe Söderlund** with any comments or queries about InterAct or this newsletter

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