

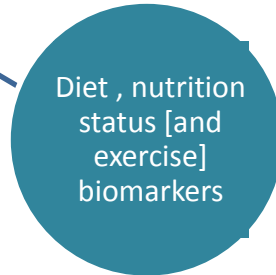
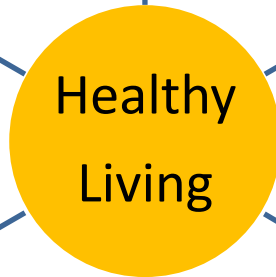
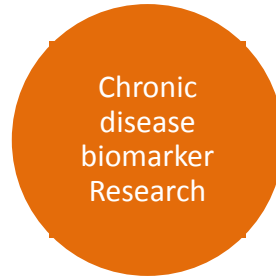
IBERS Athrofa y Gwyddorau Biolegol, Amgylcheddol a Gwledig Institute of Biological, Environmental and Rural Sciences



Innovation Networks in Wales linked to Aberystwth

UK Biological Sciences Research Council and UK AgriTec:

Breeding for future functional foods & feed, Improved agricultural production systems



Life Sciences National Research Network, National Institute for Social Care & Health Research:

Drug discovery, Chronic health condition biomarkers, Precision health research unit

UK Medical Research Council:

Integration of biomarker technology into community medicine, population stratification, & health policy development

Aber Innovation Campus:

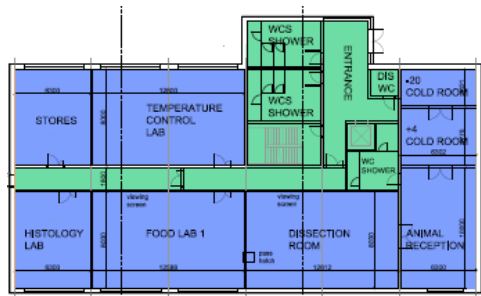
Seed Biobank, Future Food Centre, Biorefining Centre,

£10M Analytical Chemistry Hub for bioactives and biomarker discovery, HT chemotyping, food quality & health diagnostics

EU Structural Funds: Aberystwyth Innovation Campus (£40m) investment in Future Food Centre, Bio-refining Facility & Biomarker Hub



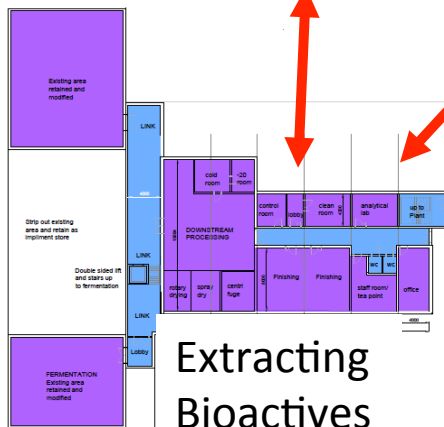
AIEC = Technology Hub where Industry Interacts with Academia



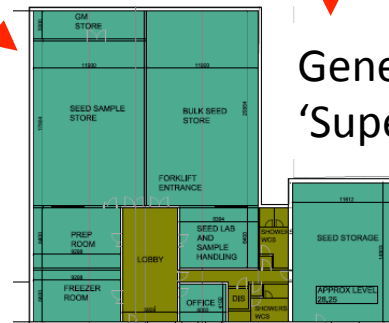
Novel Food Development



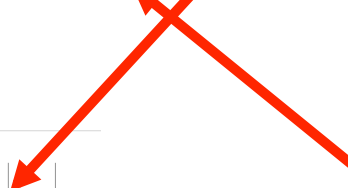
Crop/Food Qualities
 Human-Food Interactions



Extracting Bioactives



Generating 'Super-crops'





PRIMARY PRODUCTION



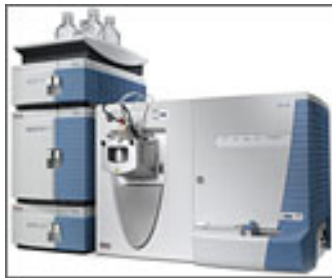
FOOD



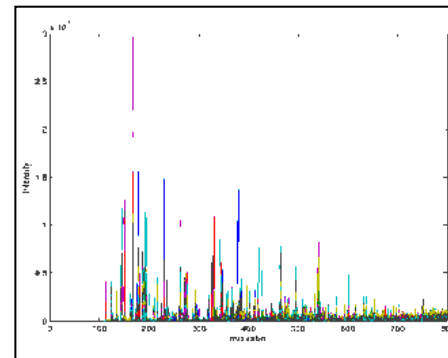
HEALTH

“Biomarker technology to support personalised nutrition and precision health”

❑ Chemical Fingerprinting and Advanced Data Analysis



Mass Spectrometry



Urine
fingerprint

❑ Discovery and High throughput Targeted analysis of diagnostic chemical ‘biomarkers’

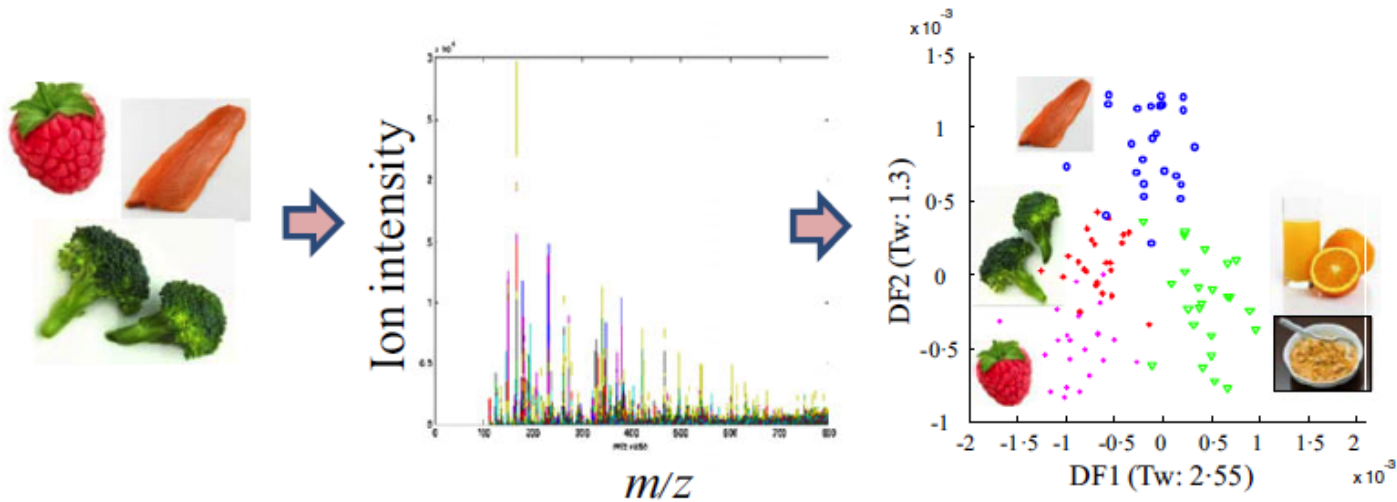
Plants are rich in chemical diversity

> 120,000 secondary metabolites described

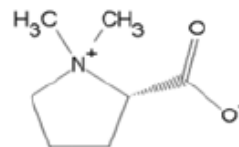


- Dietary chemicals may have 'bioactivities' which impact on health.....
... validating significance in epidemiological studies has proved very difficult!

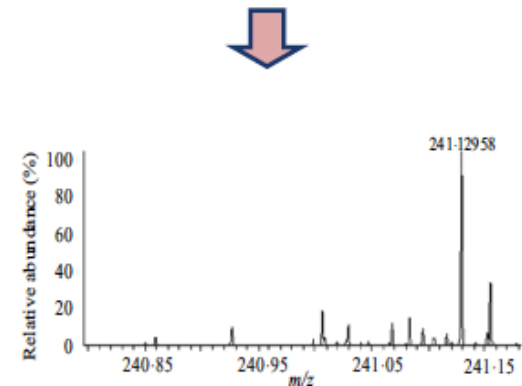
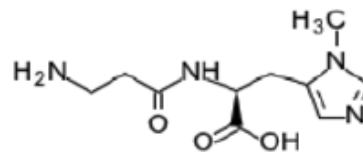
e.g. biomarkers to measure food exposure in vulnerable populations



Citrus fruits:
 Proline
 betaine



Oily fish:
 Anserine



Why am I here?

What diagnostic technologies are available to develop routine test for the urine metabolite with biomarker potential?

Identify companies interested in collaboration to develop diagnostics

MRC Programme Grant :

Can we use Biomarkers for Population Screening in Community Settings?

- ❑ Develop urine/blood spot sampling strategy suitable for routine use of biomarker technology in community setting

Current VacuTest urine collection in the home

1



2



3



4



5

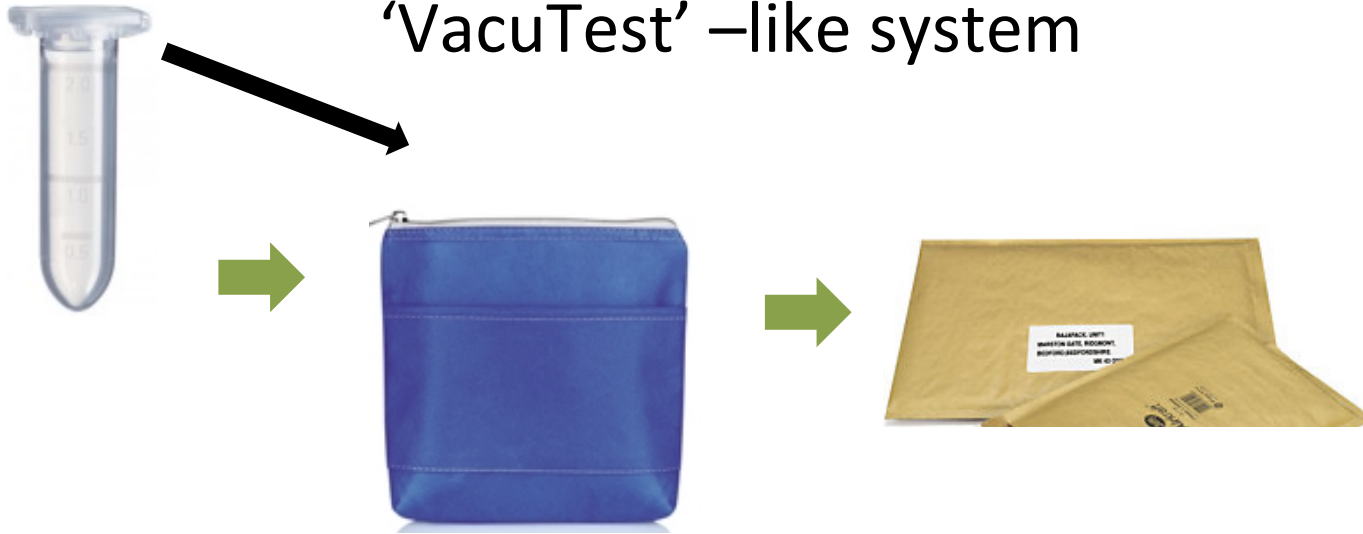


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Can we commercialise a Biofluid Home Collection Kit?

(1) Scale down version of
'VacuTest' –like system



(2) Dried blood spot filter paper wallet

(3) Standardised saliva sampling kit

AIEC Aspiration - Develop businesses supporting biomarker technology to stratify populations for personalised health care

- ❑ Develop commercial biofluid sampling kits and diagnostic kits to allow routine testing in community health care settings (e.g. pharmacy)
- ❑ Provide analytical hub for a consortium of 'living laboratories' and SMEs validating biomarkers to monitor CHC status and nutritional status