



La mia esperienza di studio e di ricerca

- 1984 Liceo Scientifico Galilei, Belluno
- 1990 Laurea in Ingegneria Elettronica
Università di Padova
- 1991-1995 fellow a University of Texas
Medical Branch Galveston, Houston,
USA
- 1994 Dottorato in Bioingegneria
Politecnico di Milano
- 1995 PhD in Fisiopatologia- University
of Texas, Medical Branch, Galveston,
Texas

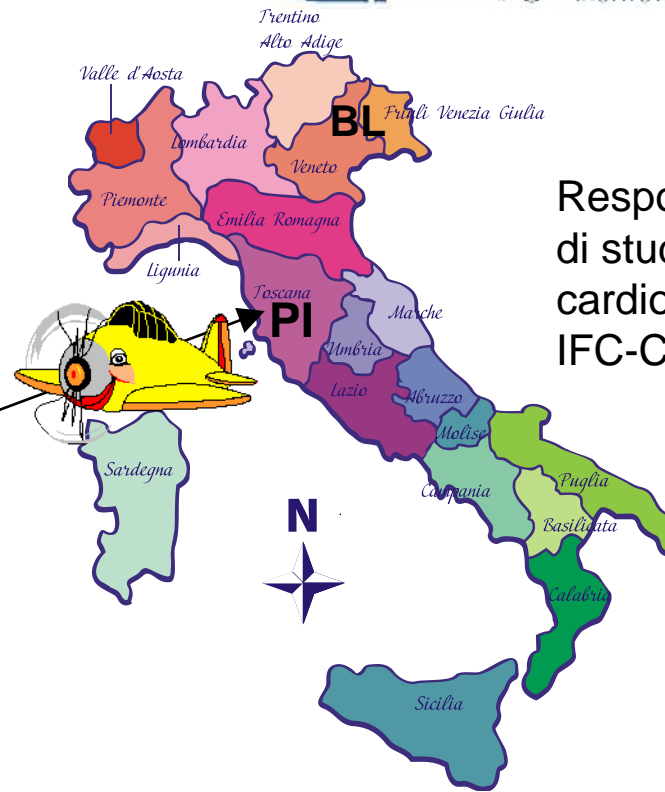




La mia esperienza di studio e di ricerca



Associate Professor,
Division of Diabetes,
University of Texas,
San Antonio, USA



Responsabile Unità
di studio del rischio
cardio-metabolico,
IFC-CNR Pisa



il mio lavoro?
Un ingegnere prestato alla
medicina

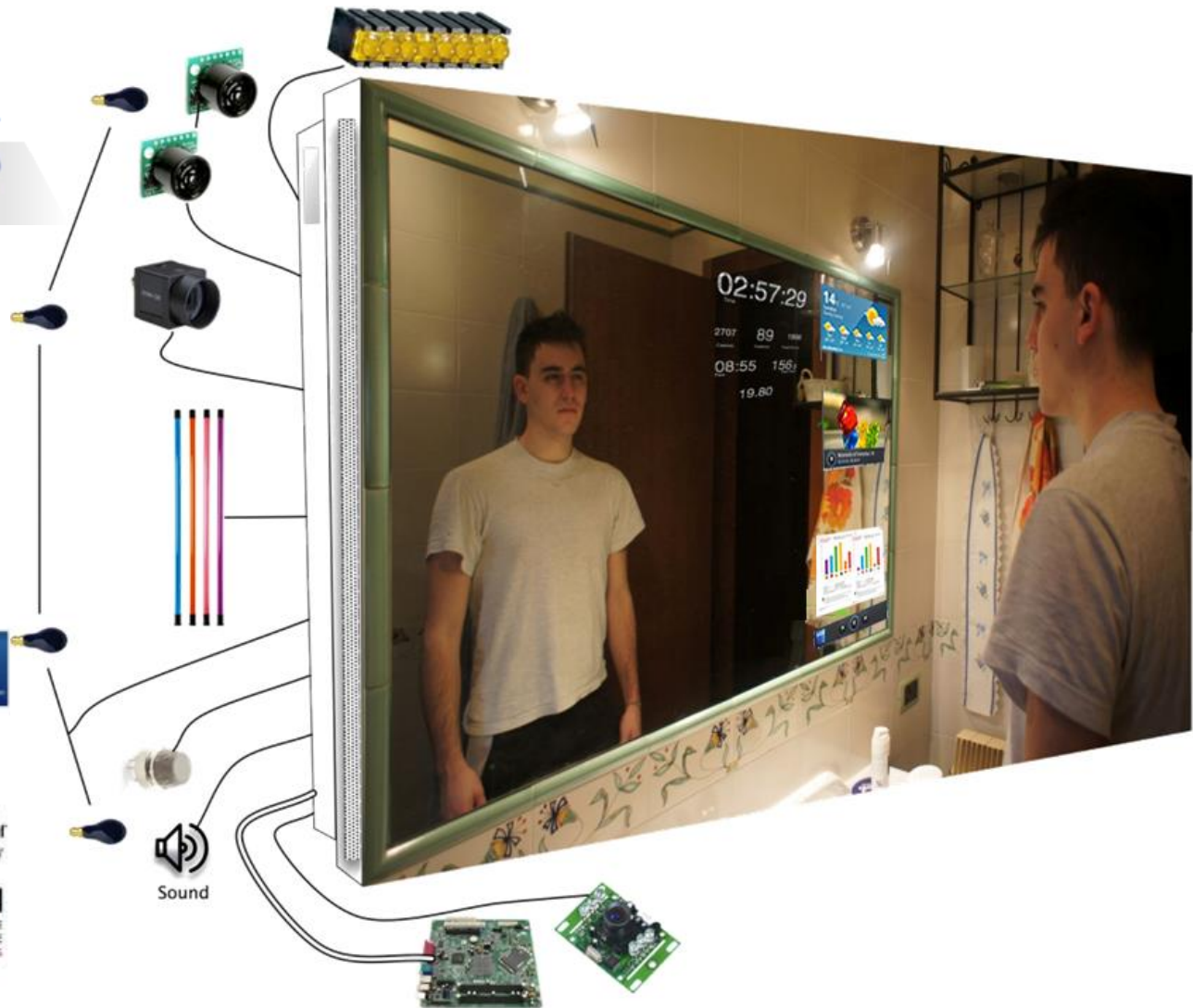




La tecnologia ci permetterà di valutare il nostro rischio da soli?



SEMEOTICONS
SEMEOTICONS



Consiglio Nazionale delle Ricerche

uclan

FORTH
Foundation for Research & Technology - Italia

Linköpings universitet
expanding reality

intecs
the Brainware company

NTNU - Trondheim
Norwegian University of Science and Technology

COSMED
Primary Function Equipment

DRACO systems
Partners in technology

CRNH
CENTRE DE RECHERCHE EN NUTRITION HUMAINE
RHÔNE-ALPES

forthnet

euronews.





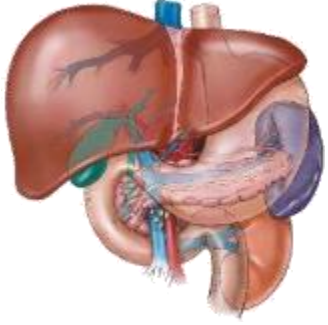
From cell to total body

Studiamo le alterazioni metaboliche a diversi livelli

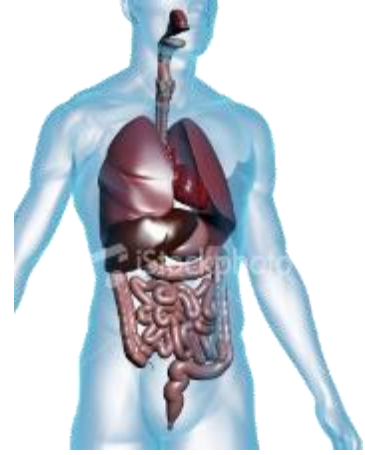
cell



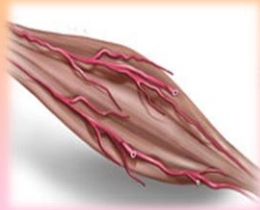
organ



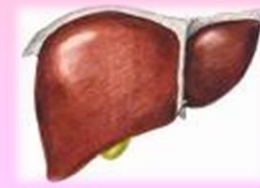
Total body



Glucose, FFA and lactate metabolism

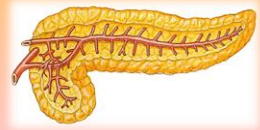


Glucose uptake,
Glucose oxidation
Protein turnover

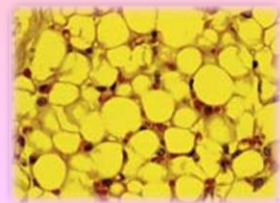


Glucose production,
gluconeogenesis,
VLDL synthesis

Studio delle malattie cardio-metaboliche



Insulin secretion and β -cell function



Lipolysis, Fatty acid composition



Consiglio
Nazionale delle
Ricerche

Dipartimento di Scienze Biomediche

LE CAUSE, GLI EFFETTI E I MODI PER CONTRASTARLA
BESITA'
QUANDO COME PERCHÉ

NON TUTTI I TIPI DI GRASSO SONO UGUALI

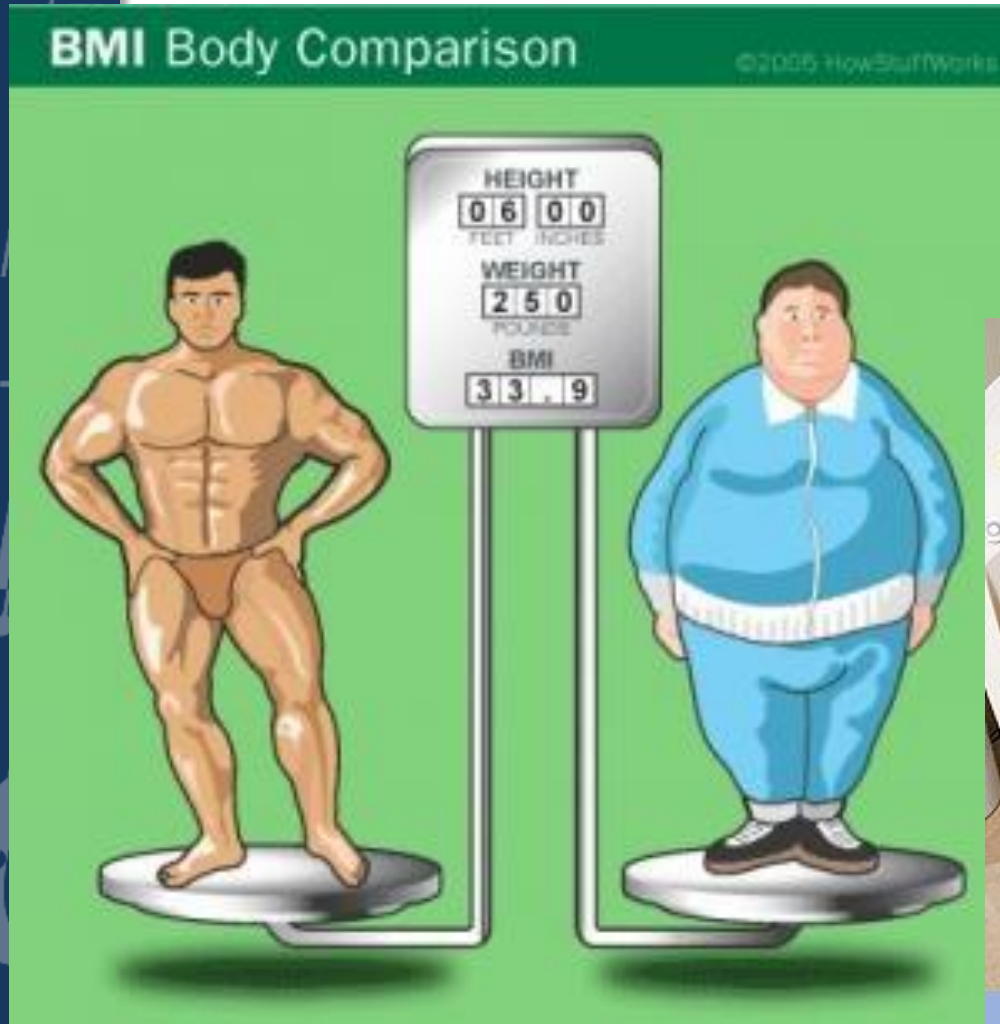


Amalia Gastaldelli

*Consiglio Nazionale delle Ricerche
Istituto di Fisiologia Clinica
Pisa*



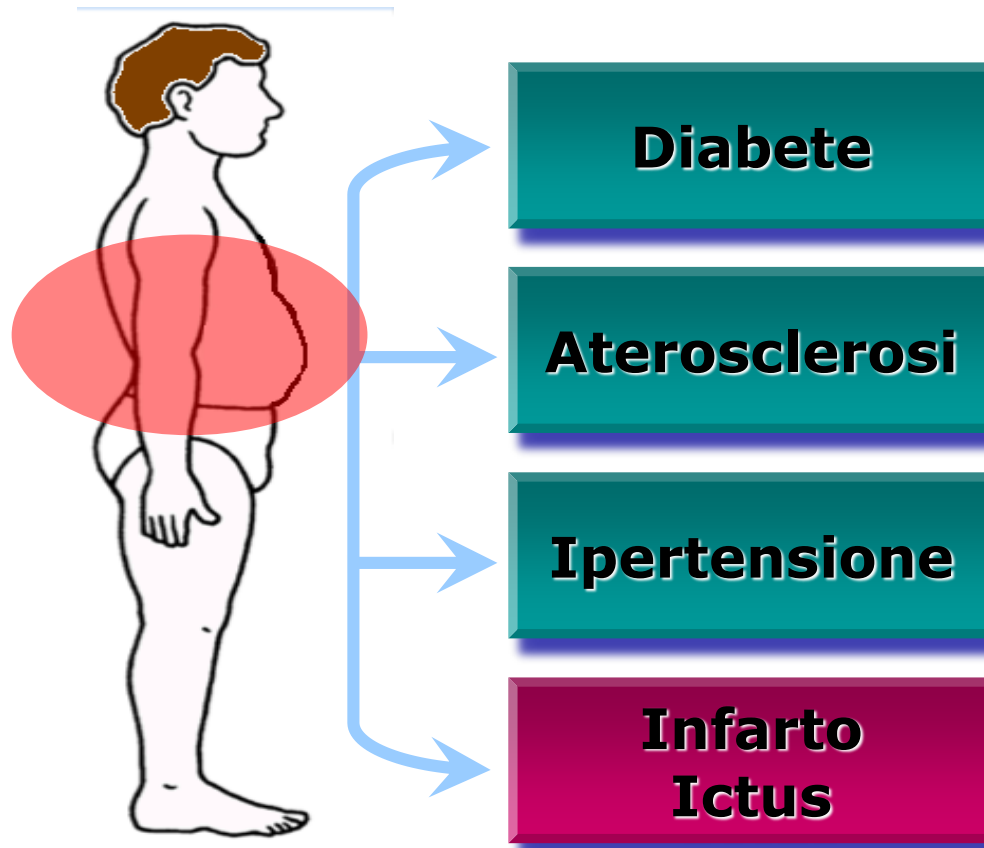
Obesità: il BMI e i diversi tipo di tessuto adiposo



Stesso peso e altezza ma diversa quantità di massa grassa e massa magra (muscolo)

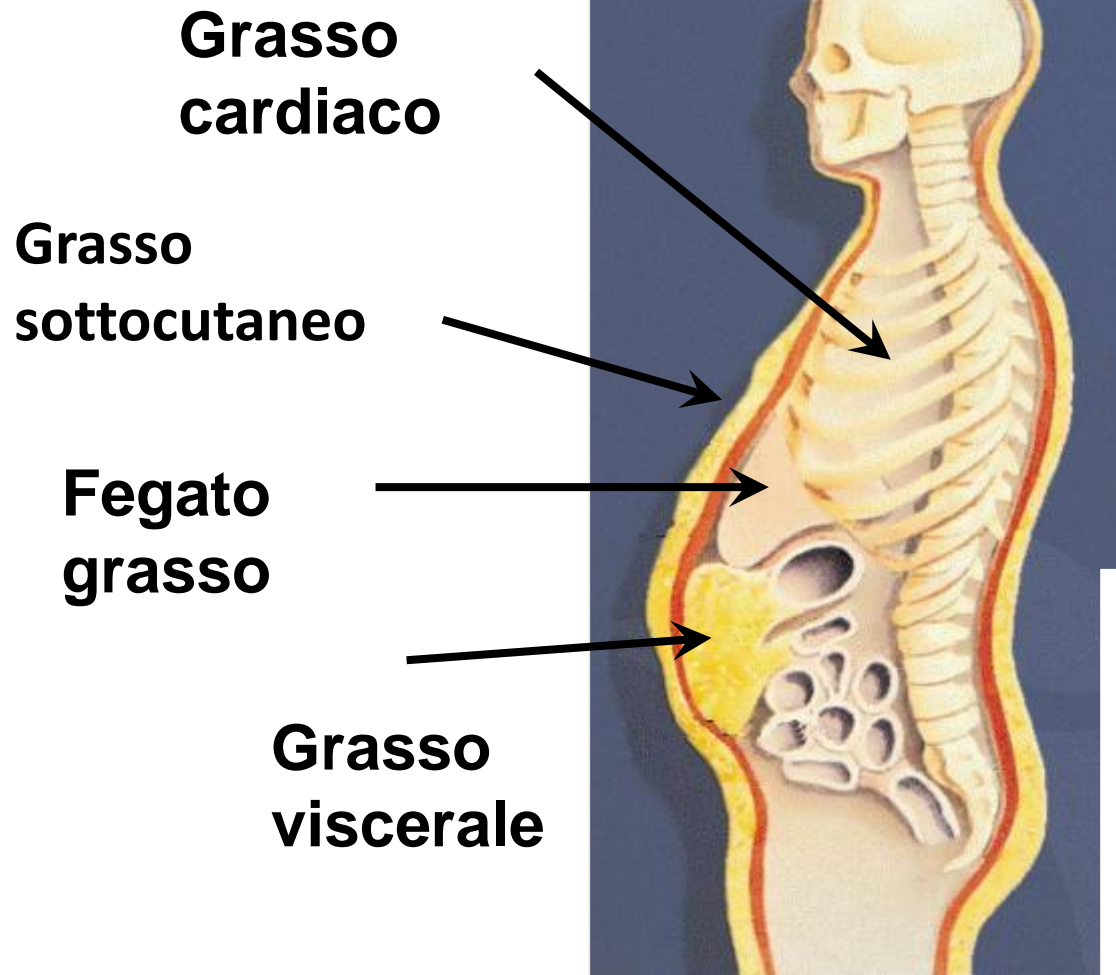


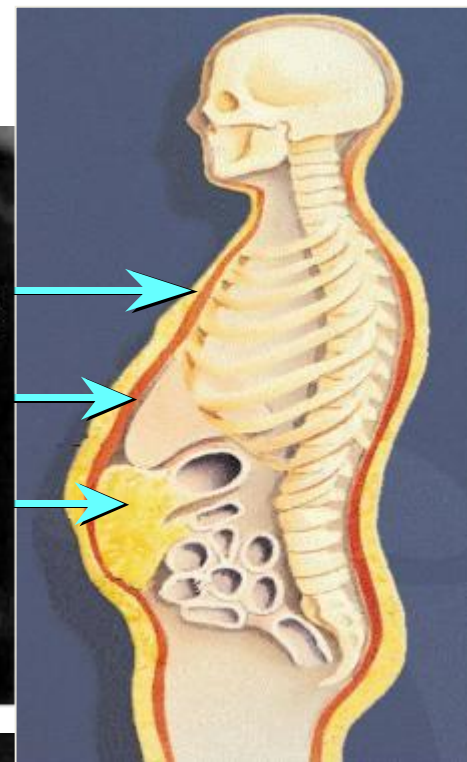
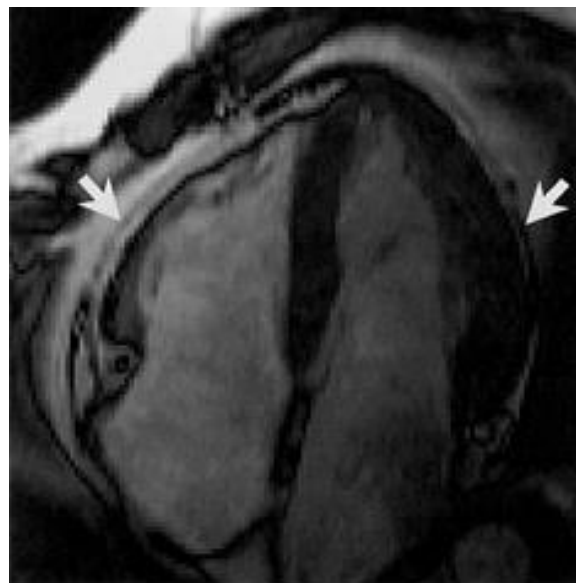
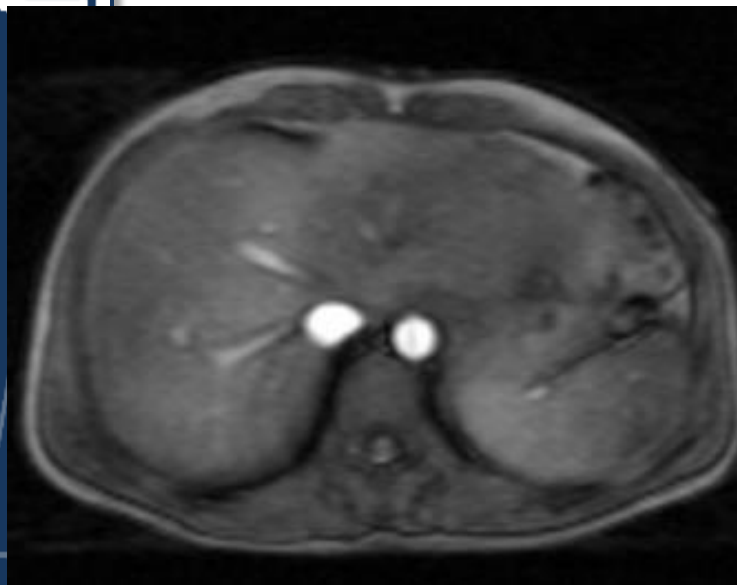
L'OBESITA' ADDOMINALE HA UN ALTO RISCHIO DI MALATTIA



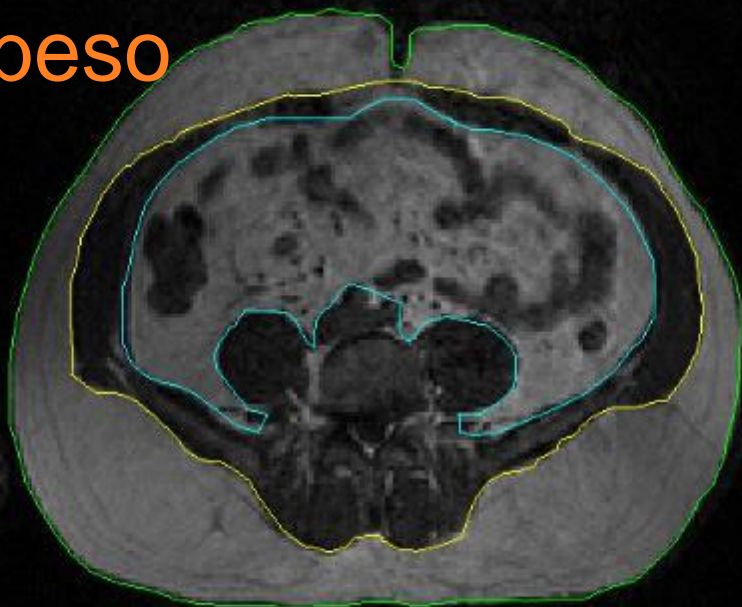
Adapted from *JAMA*. 2001;285:2486-2497; Alberti KG, et al. *Lancet*. 2005;366:1059-1062; Grundy SM, et al. *Circulation*. 2005;112:2735-2752.

IL GRASSO "INTERNO"

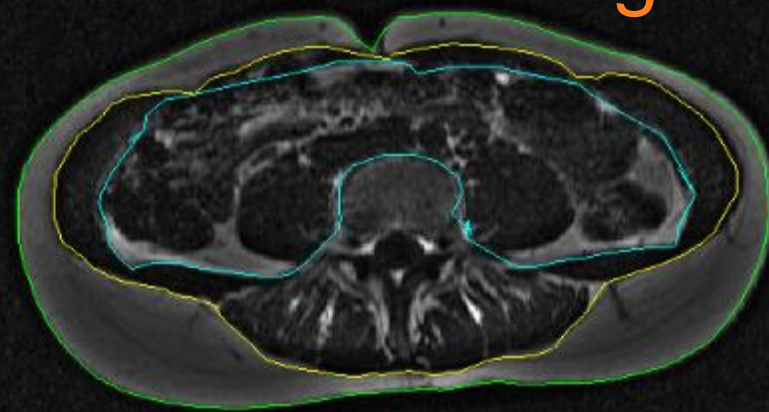




obeso



magro



IFC-CNR Pisa, MRI Laboratory

IFC TRACK

File - Display - Help

Descrizione	Scan Name	
Co 11 spine	11	
Co 11 spine	11	

Plans
 Plans

Slice selection Phase selection

New	Mod	Co	Auto	Zone
				Zone 1
				Zone 2
				Zone 3

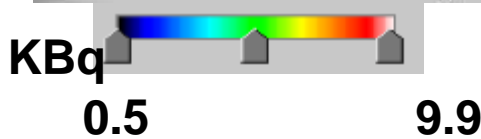
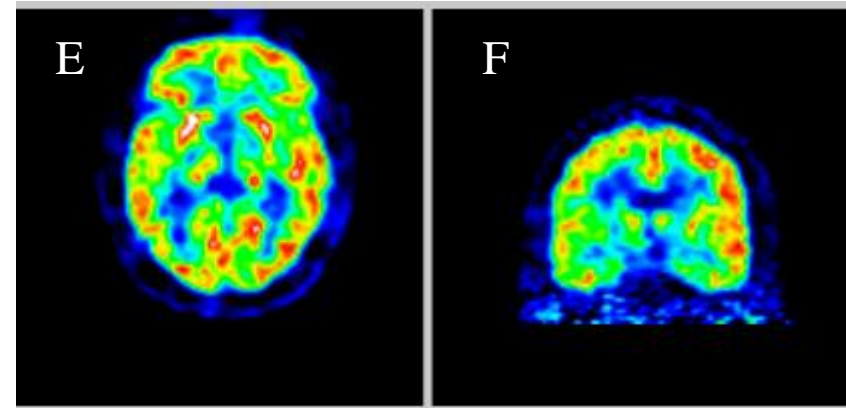
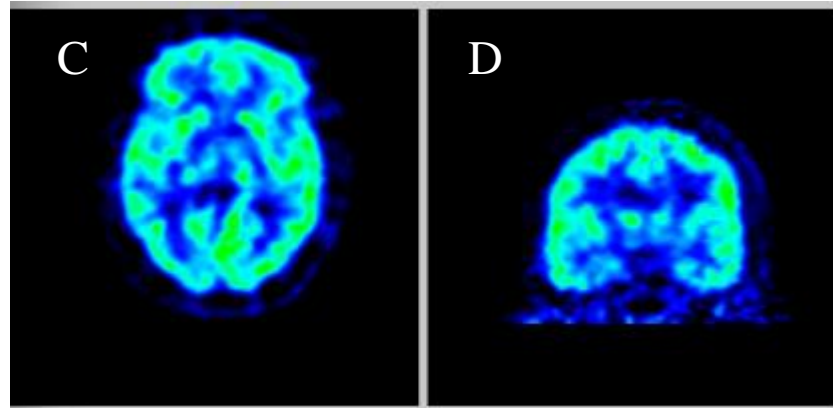
wdy cent	ds at cent
EXT FAT	1007.9
INT TRH	207.69
BUT FAT	3150.1



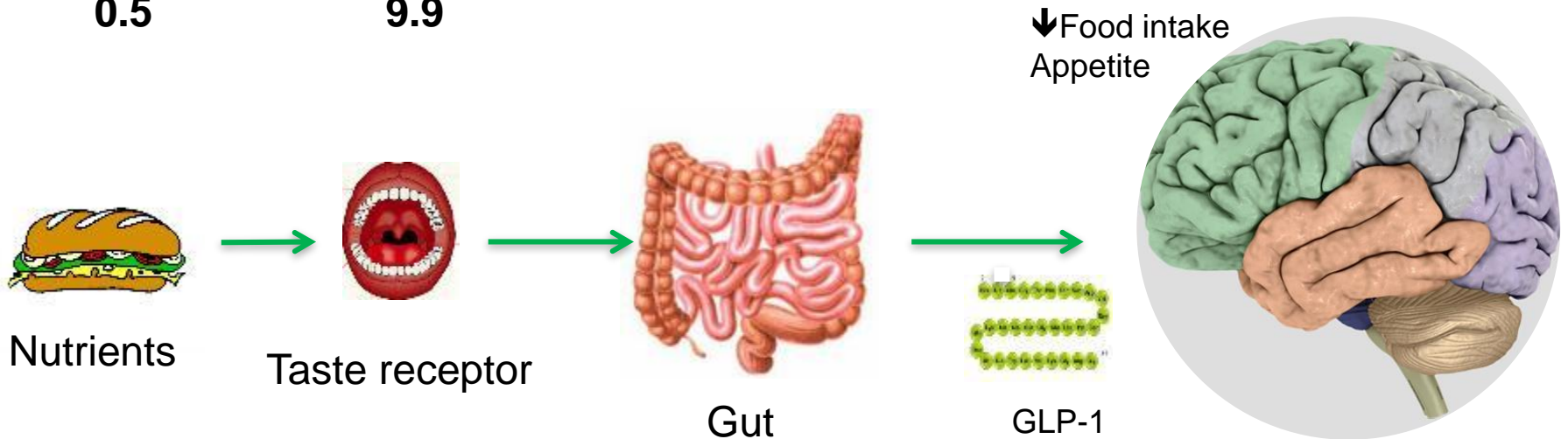
L'ormone intestinale GLP-1 "regola" il cervello e quanto mangiamo

PLACEBO

GLP-1 AGONISTA

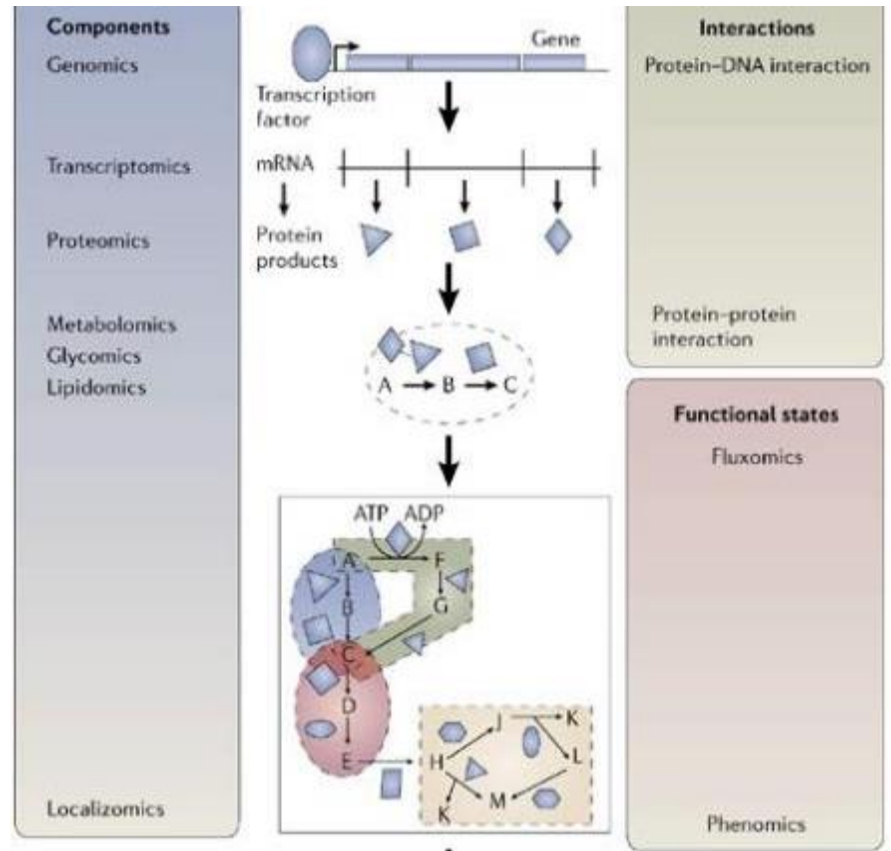


Daniele G Diabetes 2015





From gene and metabolic profile to phenotype

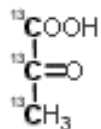
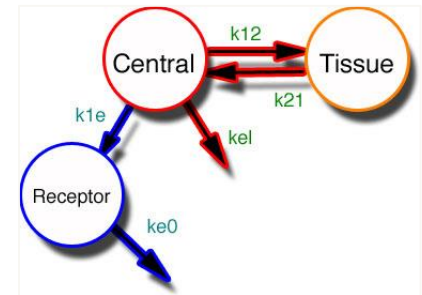
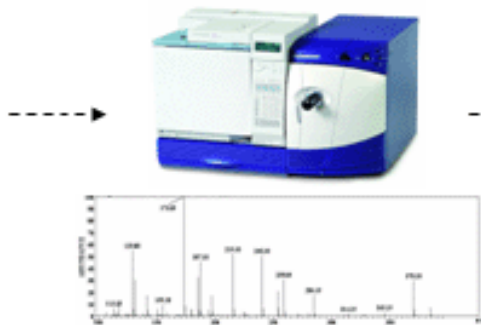


Step 1 Cell culture experiments

Step 2 Mass Spectrometry

Step 3 Metabolic Flux Analysis

Step 4 Mathematical model

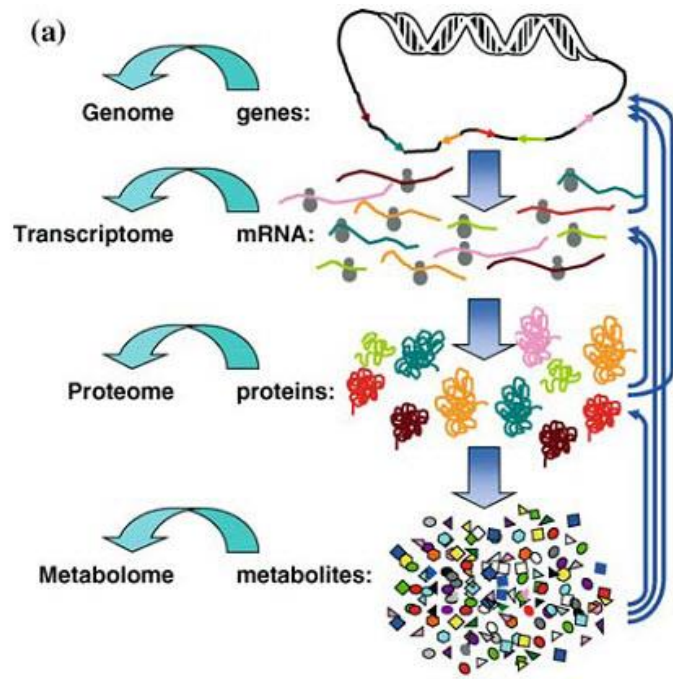
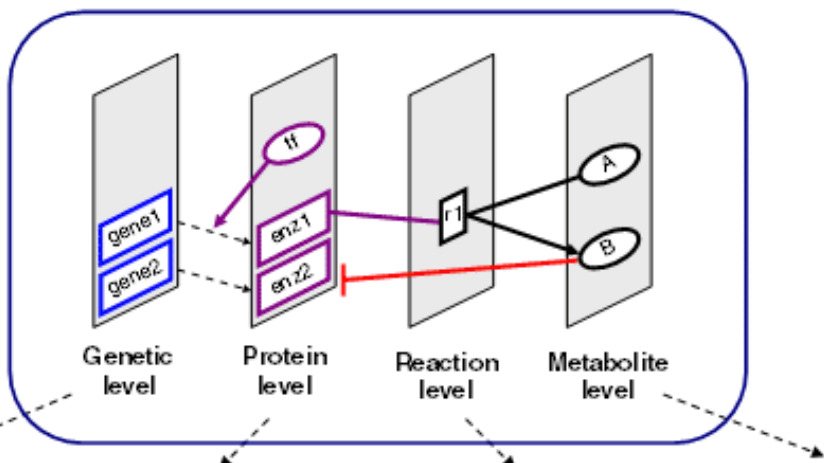


Stable-isotope tracers are used to investigate metabolic pathways

GC-MS spectra quantify labeling of cellular metabolites and products

Computational tools for flux analysis based on Elementary Metabolite Units (EMU)

Dai geni ai metaboliti

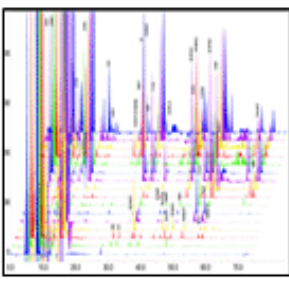
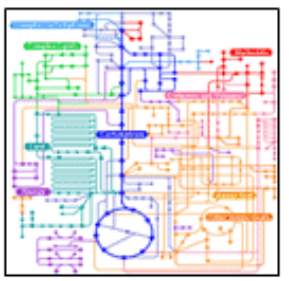
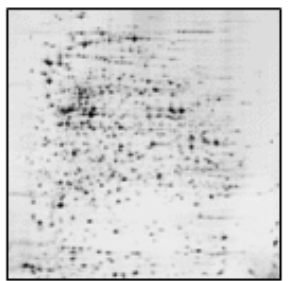
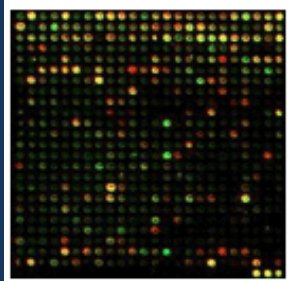


transcriptomics

proteomics

metabolic flux analysis

metabolomics



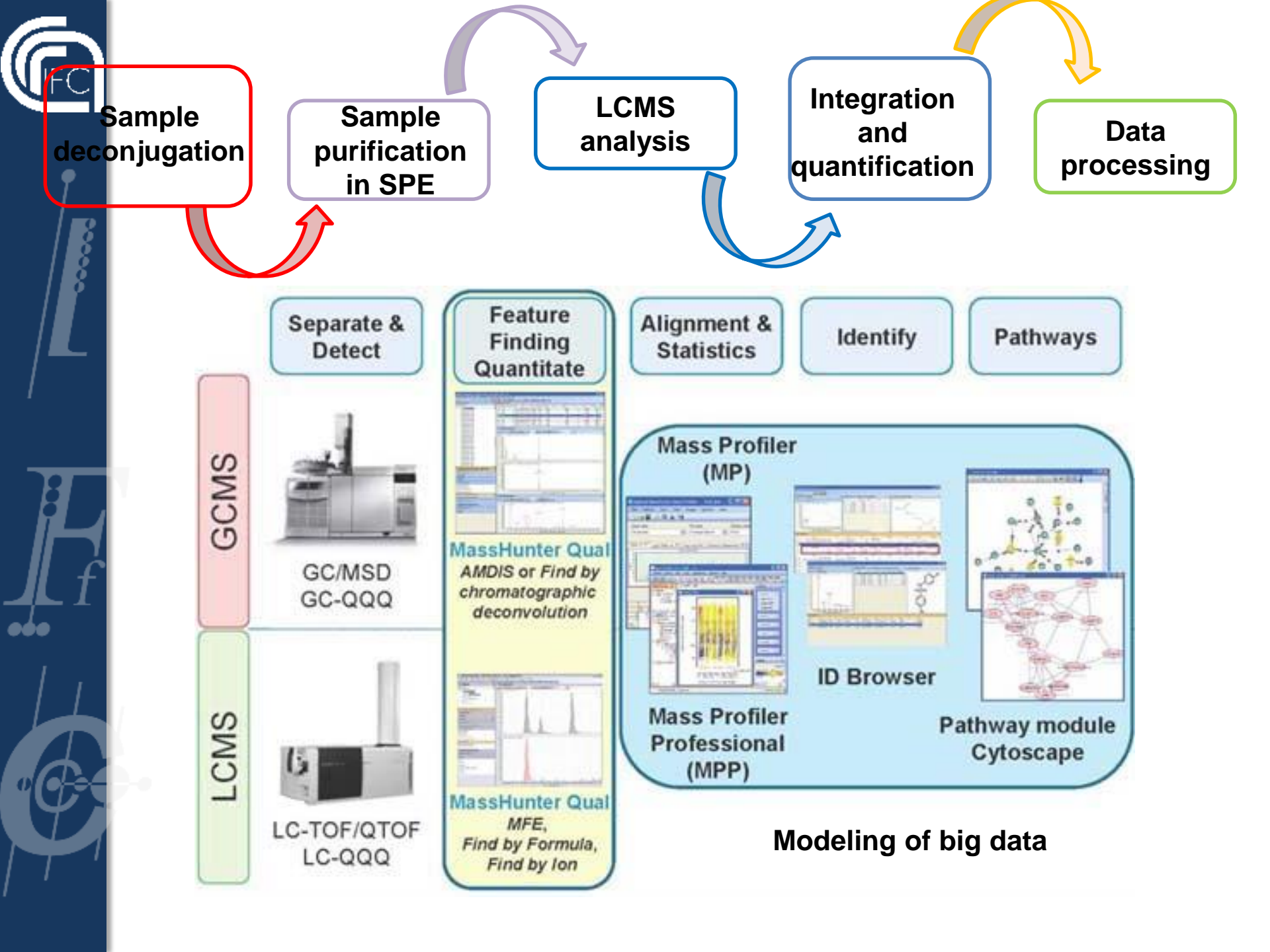
DNA microarrays (Affymetrix)

2D gels LC-MS/MS

Stable-isotopes NMR and GC-MS

GC-MS (LC-MS)





Sample deconjugation

Sample purification in SPE

LCMS analysis

Integration and quantification

Data processing

GCMS

LCMS

Separate & Detect



GC/MSD
GC-QQQ



LC-TOF/QTOF
LC-QQQ

Feature Finding Quantitate



MassHunter Qual
AMDIS or Find by chromatographic deconvolution



MassHunter Qual
MFE, Find by Formula, Find by Ion

Alignment & Statistics

Identify

Pathways

Mass Profiler (MP)

Mass Profiler Professional (MPP)

ID Browser

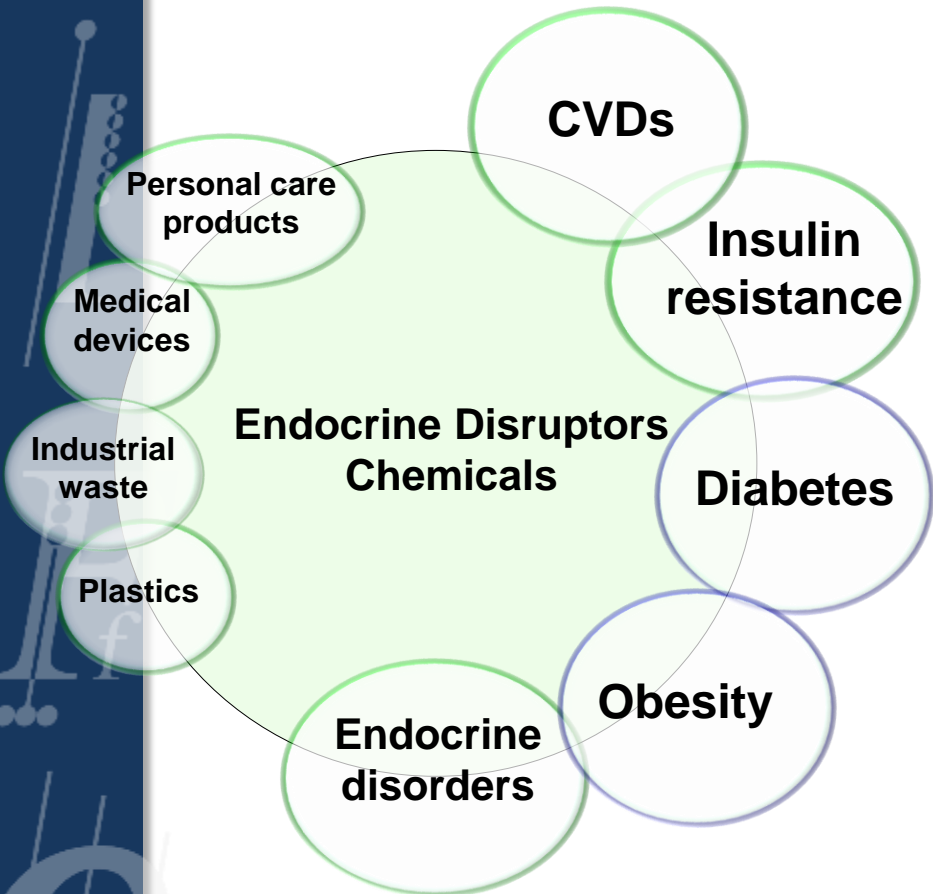
Pathway module

Cytoscape

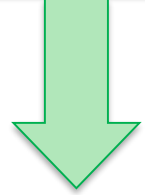
Modeling of big data



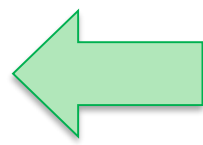
Anche l'ambiente può essere causa di malattia



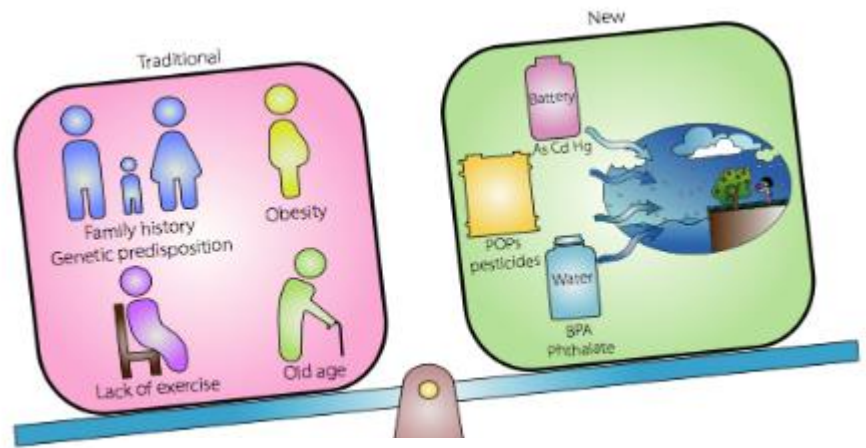
Exposition to pollutants (phthalates, bisphenol A, dioxin, PFAS, PBA triclosan etc),



Endocrine/Metabolic disruptors



Ftalati e bisfenoloA sono componenti delle plastiche che agiscono come interferenti endocrini



Risk factors

Phthalates and bisphenol A biomonitoring in Italian mother-child pairs: link between exposure and juvenile diseases

LIFE12 ENV/IT/000614



PERSUADED



Il progetto PERSUADED: studio dell'esposizione di mamme e bambini a ftalati e bisfenolo A

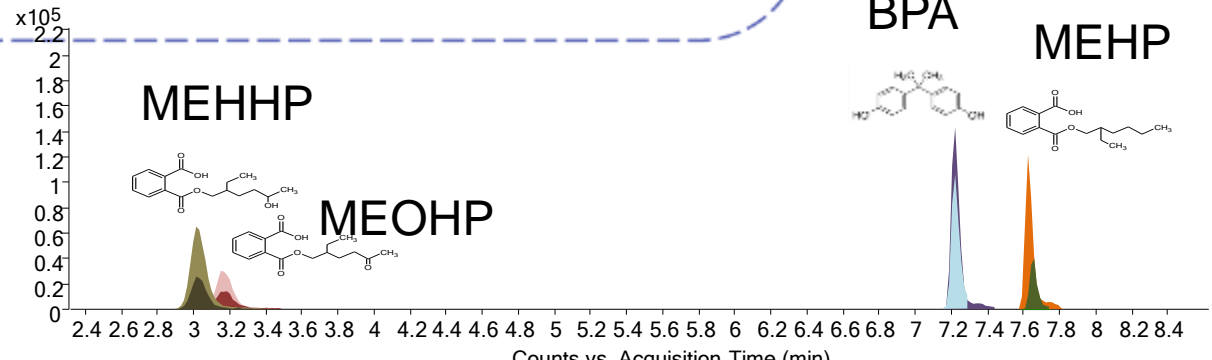
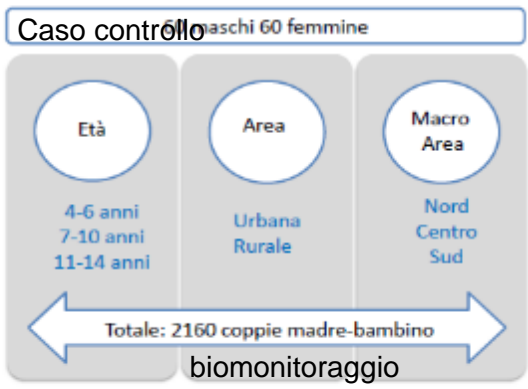
Studio di biomonitoraggio

Numero dei pediatri coinvolti per Macro Area



- NORD**
● area urbana = 17
● area rurale = 8
- CENTRO**
● area urbana = 22
● area rurale = 10
- SUD**
● area urbana = 24
● area rurale = 6

Bambini coinvolti



MEHHP

MEOHP

BPA

MEHP



Top Italian Scientists



OSSERVATORIO NAZIONALE SULLA SALUTE DELLA DONNA

Premiate le 38 ricercatrici italiane più influenti nel settore biomedico

Ma rimane troppo bassa la presenza femminile nella ricerca: un posto su quattro è occupato da una donna e solo il 17% raggiunge posizioni di lavoro prestigiose

**CORRIERE
DELLA SERA**

Collaborazioni europee nell'ambito dei finanziamenti EU FP7 e H2020





Amalia Gastaldelli

gruppo di metabolismo e rischio cardiometabolico



CNR di Pisa

