

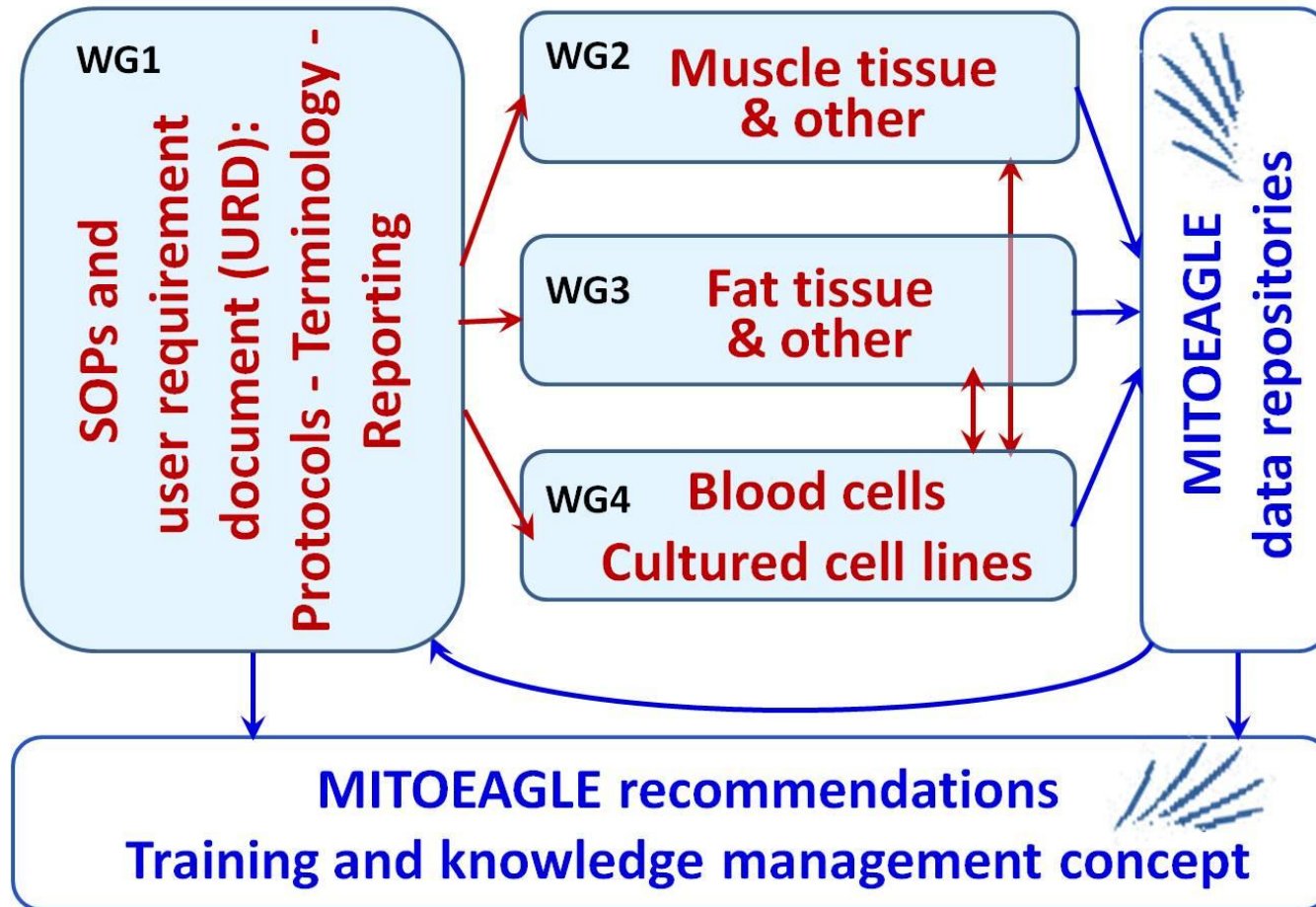
Objective

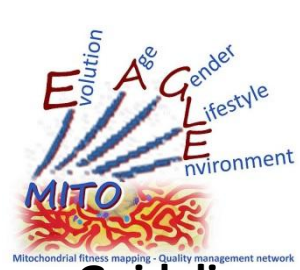
“The proposal addresses the considerable lack of uniformity and consensus on standard operating procedures in the design and implementation of research protocols involving mitochondrial physiology. “

“The will to reach standardized protocols and ways of data presentation, that will allow an easy cross comparison of data; this aim has been reached in many other fields of research (e.g flow cytometry data, microarray analysis).”

→ ***Statistical combination of different studies***

Working Group I





Working Group I Deliverables

Guidelines

- evaluation of respiratory characteristics
- optimum use of a reference sample

Qualitative and quantitative evaluation

- reference sample
- instrumental platform comparison

Joint publications

- unification of concepts and nomenclature in mitochondrial physiology
- recommendations of comparable standard protocols and procedures
- documenting the results of the MITOEAGLE-PT

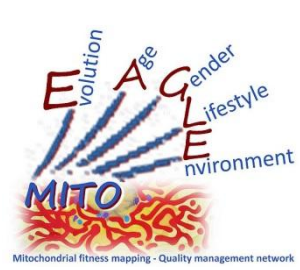
MITOEAGLE data management system

- data on human cells and tissues & data from other species

Library of protocols

- reference SUIIT protocols
- standard experimental media
- detailed instructions for analysis of mt-function

Training



Working Group I How to reach the goals ?

Guidelines

Joint Publications

TG1.1 Coupling states and coupling control ratios: consensus statements

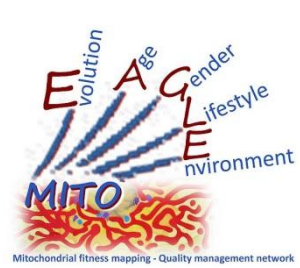
TG leaders: Renner-Sattler Kathrin DE / Gnaiger Erich AT / Hoppel Charles L US

TG1.2 SUIIT protocols: nomenclature consistent with concept of database

TG leader: Doerrier Velasco Carolina A AT, Gnaiger Erich AT

TG1.3 Experimental details in SUIIT

TG leaders: Chicco Adam J US/ Hickey Anthony J NZ/ Doerrier Velasco Carolina A AT



Working Group I How to reach the goals ?

Qualitative and quantitative evaluation

TG1.6 Proficiency test

TG leaders: Gnaiger Erich AT/ Doerrier Velasco Carolina A AT

TG1.4 Instrumental platform comparisons

TG leaders: Molina Anthony JA US

Training of researchers

TG1.10 Training, Short Term Scientific Missions

TG leader: Labieniec-Watala Magdalena PL, Klaus Susanne DE

Summer Schools

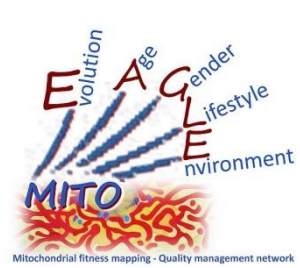
Dissemination

TG1.8 Translation to community in general

TG leader: Makrecka-Kuka Marina LV (Dissemination Coordinator), Rattan Suresh D

TG1.9 Dissemination Scientific community

TG leaders: Makrecka-Kuka Marina LV / Gnaiger Erich AT



Working Group I How to reach the goals

MITOEAGLE data management system

TG1.5 Knowledge management system

TG leaders: Drinnan Michael UK / Plattner Christina AT

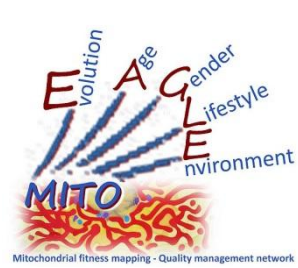
database including protocols, references, terminology

based on bioblast

data management system implemented in the daily routine

Talk of Marko Vendelin

- strategy implemented in a user requirement document



Working group I – Outlook

SOPs

Methods

isolation/preparation procedures

define standard media: isolation, measurement

analysis of mitochondrial respiratory function

- define (report) oxygen levels measurements are performed

- define (report) optimum substrate /inhibitor concentrations

- quality tests: membrane integrity test (cytochrome c release test)

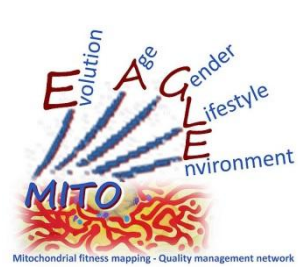
Cohort/sample

define cohort – rigorous documentation

- tissue (human/murine): age, sex, BMI, blood pressure, fitness level

- blood cells: isolation procedure (Ficoll vs. Ery-lysis, heparin blood vs. EDTA, Citrate)

- cultured cells: culture media, passage, confluence level,



Working group I – Outlook

SOPs

Data management

make raw data available?

normalization of data

- mg tissue – wet weight/dry weight – can we transform from one to the other
- cell number, cell size
- mitochondrial density, volume
- mt-marker

data evaluation

- mean/median
- statistical evaluation

data reporting

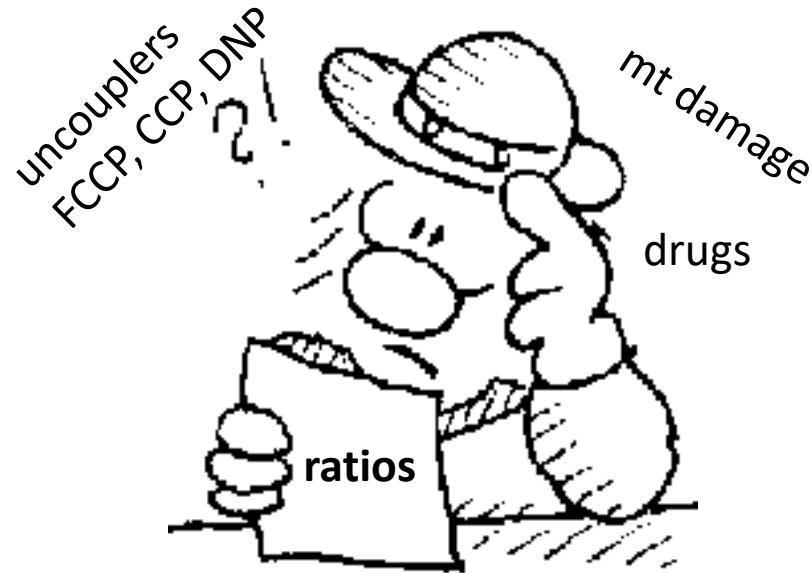
- terminology/definitions

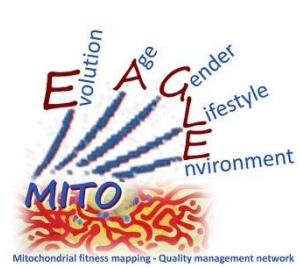
Working group I – Outlook

COUPLING

coupled, uncoupled, dyscoupled, non-coupled ???

distinguish or not distinguish





Working group Terminology - Uncoupling

intrinsic - physiological uncoupling

experimental - experimental lowering degree of coupling (uncouplers)

Uncoupled respiration

fully uncoupled (non-coupled) state without inhibiting respiration \approx ETS capacity

Noncoupled respiration

extrinsic uncoupling (pathological, toxicological, pharmacological)

Dyscoupled respiration

dyscoupling indicates a mitochondrial dysfunction

related coupling control ratios

Mammoth task to make the EAGLE fly

