Fulbright International Education Exchange – Fostering Science and Mutual Understanding between Nations and Cultures

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Goce Delcev University, Stip

Republic of Macedonia

FULBRIGHT International Education Exchange

Senator J. William Fulbright
(1905-1995)

INTERNATIONAL EDUCATION EXCHANGE IS THE MOST SIGNIFICANT PROJECT DESIGNED TO CONTINUE THE PROCESS OF HUMANIZING MANKIND TO THE POINT, WE WOULD HOPE, THAT NATIONS CAN LEARN TO LIVE IN PEACE.

REPUBLIC OF MACEDONIA

Journey through the centuries


THE FORMER YUGOSLAV
REPUBLIC OF
MACEDONIA
SERBIA
Kosovo
BULGARIA
ALBANIA
GREECE
Skopje
Kumanovo
Tetovo
Gostivar
Veles
Štip
Kočani
Kratovo
Kriva Palanka
Probištip
Sveti Nikole
Katlanovo
Petrovec
M.Kamenica
Delčevo
Vinica
Berovo
Radoviš
Strumica
Dabilja
Valandovo
Novi Dojran
Gevgelija
Miravci
Negotino
Kavadarci
Drenovo
Mrežičko
Prilep
Topolčani
Brod
Bitola
Kranji
Resen
Kozjak
Ohrid
Struga
Mešeišta
Debar
Kičevo
M.Brod
Kruševo
Sopotnica
Demir Hisar
Mavrovo
Rasteš
Samokov
Belica
Bogomila
Stepanci
Tearce
Stracin
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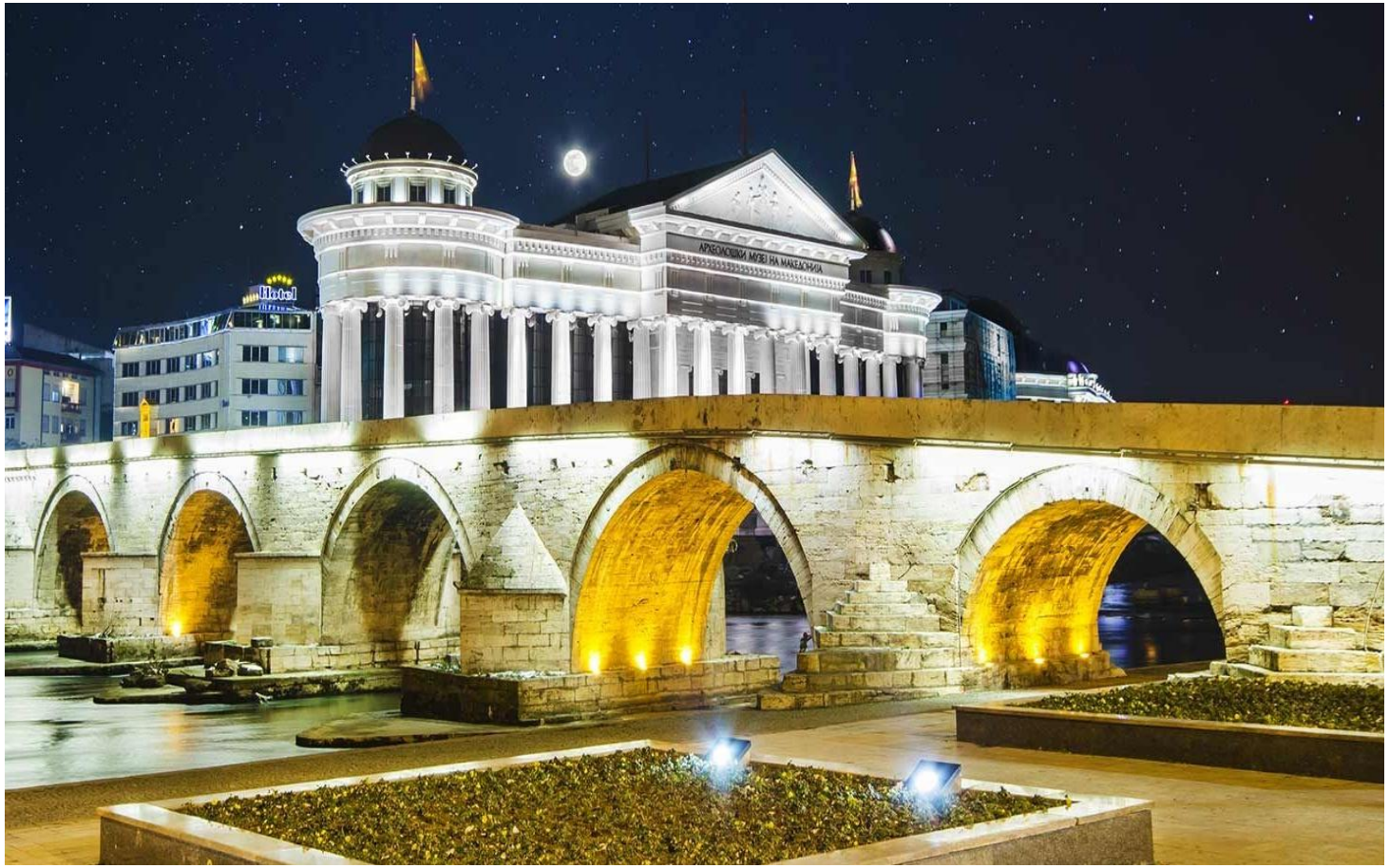
Prizren
Kyustendil
Petrich
Peshkopi
Prrenjasi
Pogradeci
Flórina
Édhessa
Thessalon'ki
Lake Ohrid
Lake Prespa
Lake Dojran
Lake Tikveš
Lake Matka
Lake Mavrovsko
Límni Mikri Préspa
Límni Vegorritis
Vardar
Treska
Crna
Bregalnica
Pčinja
Strumica
Struma
Axios
Šar Planina
Skopska Crna Gora
Osogovske Pl.
Plačkovica
Maleševski Pl.
Ogražden
Belasica
Kožuf
Nidže
Selečka Pl.
Ilinska Pl.
Karadžica
Suva Gora
National capital
Opstina centre
Town, village
Major airport
International boundary
Opstina boundary
Super highway
Main road
Secondary road
Railroad
Canal
0 10 20 30 40 km
0 10 20 30 mi
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

SKOPJE – the Capital City



SKOPJE – the Old Bazaar

- 12th Century

- Rapidly developped during the Ottoman rule

The largest bazaar in the Balkans, outside Istanbul
Protected national landmark

SKOPJE – the Fortress

- First built in 6th century, by Byzantine Emperor Justinian I
- Further constructed in 10th and 11th century

- Part of material originates from the Roman city Skupi, which was destroyed by the earthquake in 518

SKOPJE – Birthplace of Mother Teresa

Nobel Peace Prize
December 1979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Karadžica
Radika
Lake Mavrovo
Topolka
Babuna
Marková
Kadino
Lepenac
Beli (Drim)
Drin
Drin-i-zi
Crni Drim
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21°
22°
23°
42°
41°

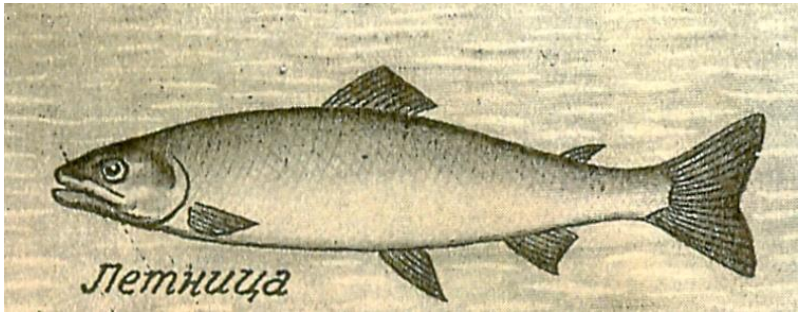
OHRID – Pearl of the Balkans

OHRID LAKE

Maximum depth: 288 m (940 ft)
Mean depth: 155 m (508 ft)
Area: 358 km^2 (138 sq mi)

More than 200 endemic species

UNESCO's World Heritage Site



Salmo letnica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STIP – Goce Delcev University

27 March 2007 - Established by the Assembly of the Republic of Macedonia
28 June 2007 - The first Constitutive Assembly of the University Senate

GOCE DELCEV

1872 - 1903

I understand the world solely as a field for cultural competition among nations.

STIP – Goce Delcev University

CAMPUS 2

Faculty of Natural and Technical Sciences
Faculty of Agriculture
Faculty of Computer Science
Faculty of Electrical Engineering
Faculty of Technology
Faculty of Mechanical Engineering

CAMPUS 3

Faculty of Medical Sciences

CAMPUS 4

Faculty of Educational Sciences
Faculty of Economics
Faculty of Law
Faculty of Tourism and Business Logistics
Faculty of Philology
Music Academy
Art Academy
Film Academy

RECOGNISE YOUR FUTURE

16 000 students
ECTS

Faculty of Medical Sciences

Academic Study Programs

Integrated Studies of First and Second Cycle:
-GENERAL MEDICINE
-DENTAL MEDICINE
-PHARMACY

Medical Specialization and/or PhD Program

BIOMEDICINE
Translational Medicine
Medical Biotechnology
Regenerative Medicine
Medical Physics

NEUROSCIENCES

DENTAL MEDICINE

Occupational Study Programs

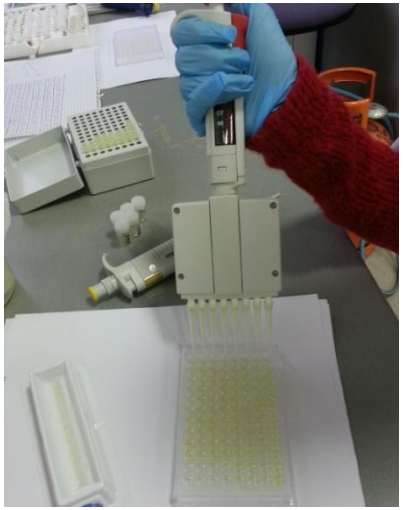
-Nurses
-Physiotherapists
-Medical Laboratory Technicians
-Dental Technicians - Prosthodontics
-Midwives
-Optometrics and Eye Optics

Specialization

Laboratory of Biochemistry and Clinical Chemistry

Current project: "Oxidized proteins in patients on hemodialysis – influence of the supplementation with vitamin C"

Free Radic Res. 2014 Nov 26:1-38. [Epub ahead of print]
Ankyrin is the major oxidised protein in erythrocyte membranes from end-stage renal disease patients on chronic haemodialysis and oxidation is decreased by dialysis and vitamin C supplementation.
Ruskovska T, Bennett SJ, Brown CR, Dimitrov S, Kamcev N, Griffiths HR.



COST CM1001 Action

Interuniversity Cooperation

- **Interuniversity Cooperation Center**
  - International associations and networks
  - Bilateral agreements

- **ERASMUS network**
  - 15 FMS student exchanges
    - Italy
    - Bulgaria
    - Croatia

NAD – A REDISCOVERED 'OLD' MOLECULE

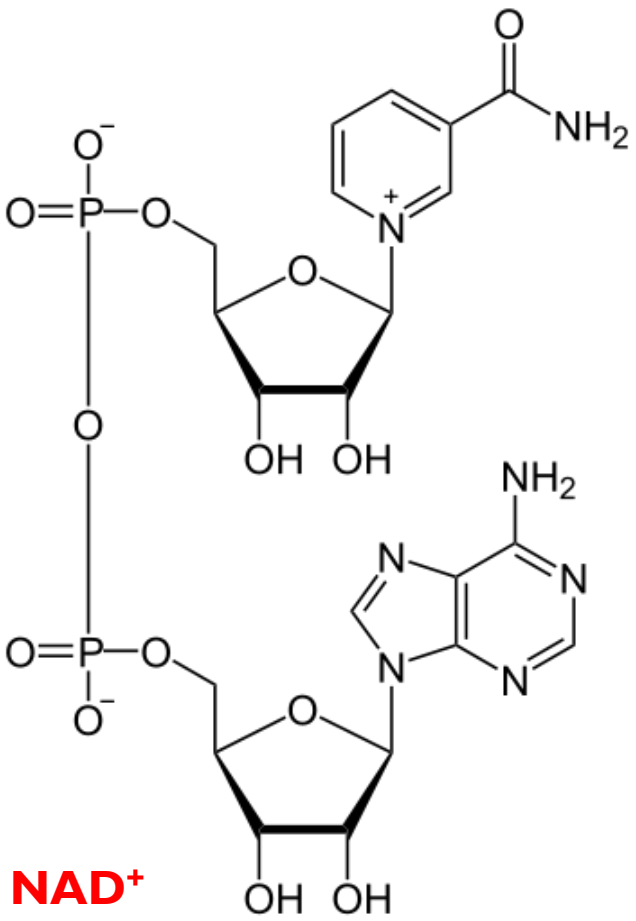
Focus on the white adipose tissue in obesity induced insulin resistance

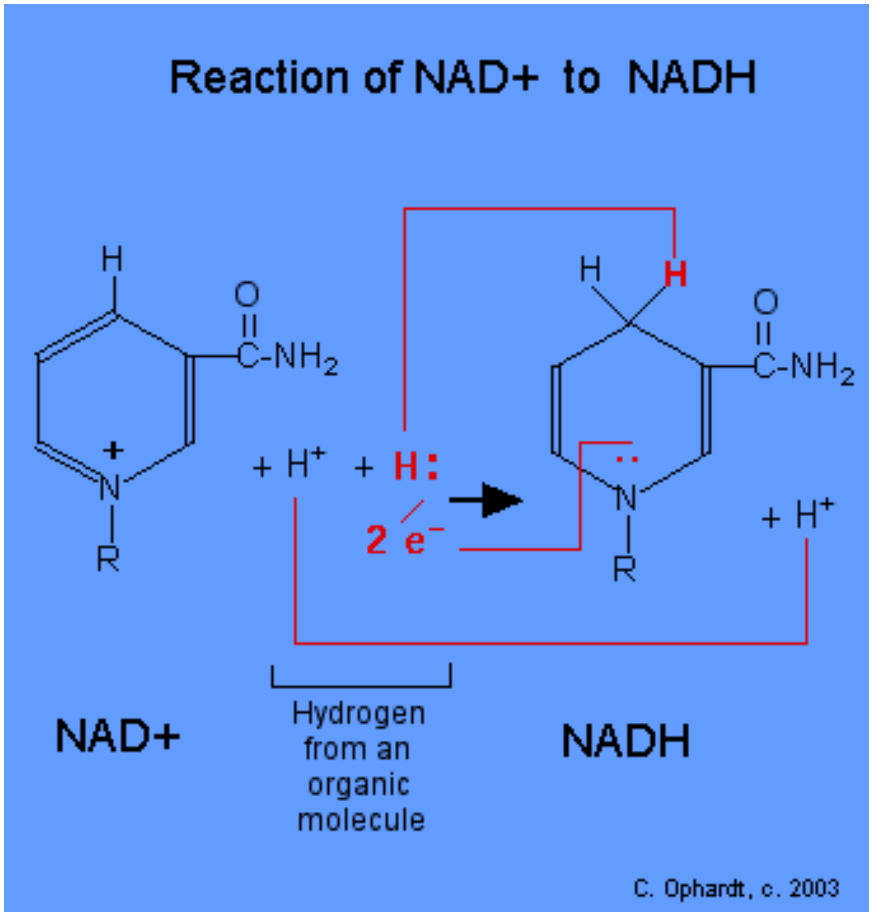
Protein Carbonylation, Sirtuins and NAD

Protein carbonylation and sirtuins in the white adipocytes and their involvement in the pathogenesis of insulin resistance

- **Protein carbonylation**
- **Protein acetylation**
- **Sirtuins – NAD dependent deacetylases / deacylases**
- **SIRT3 – mitochondrial deacetylase**
- **NAD – 'rediscovery' of this 'old' molecule**

NAD – an ‘old’ molecule





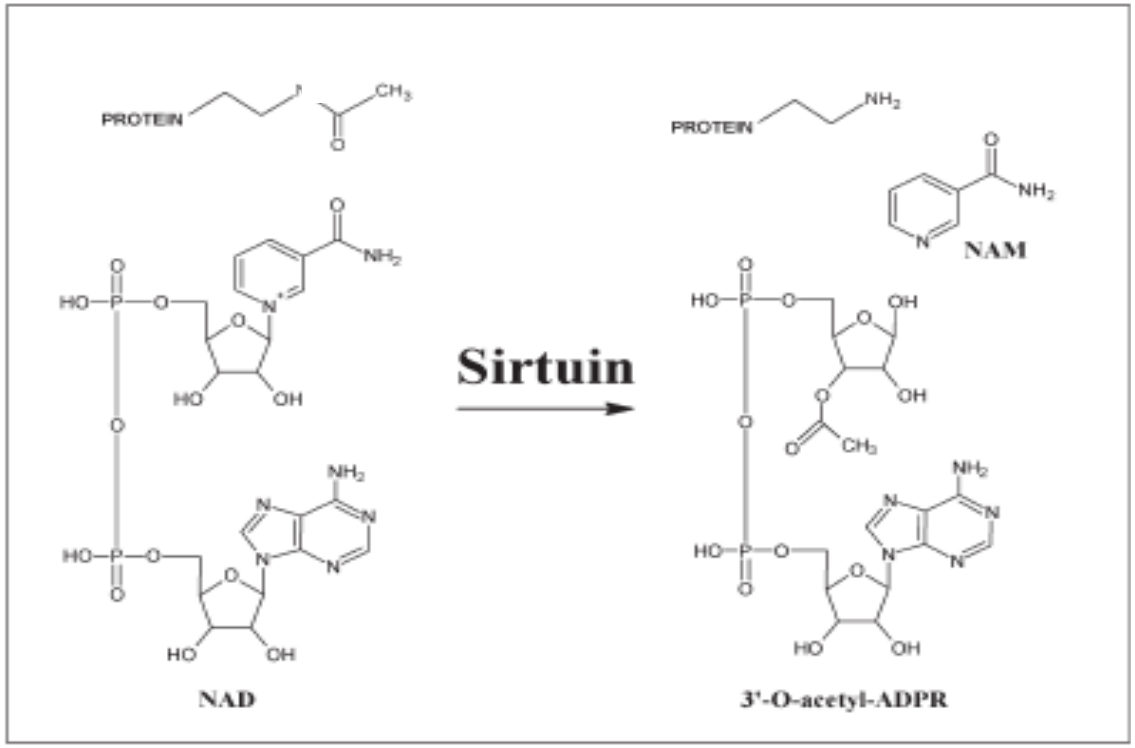
NAD – a rediscovered 'old' molecule

- **NAD – role in redox reactions: Warburg, 1930s**
  - NAD is repeatedly converted between its oxidized and reduced form, thus its levels remain constant
    - Balance of the cellular redox potential
    - ATP synhesis

- **NAD in non-redox reactions**
  - NAD molecule is utilized for some reactions and consequently its concentration decreases as a result of catalysis
  - To prevent depletion of the cellular pool of NAD, continuous re-synthesis, mainly via the Salvage Pathway is required

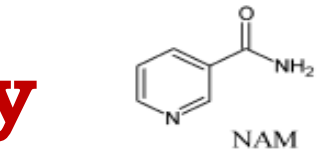
SIRTUINS

- **Sirtuins – class III deacetylases /deacylases**
  - 7 sirtuins with different subcellular localization



Di Stefano and Conforti, FEBS Journal (2013), 4711-4728

Salvage pathway

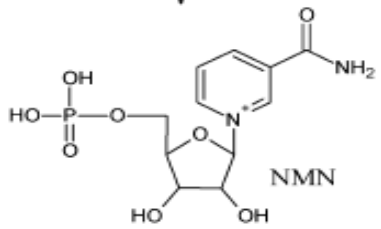


PRPP

PP$_i$

NAMPT

Nicotinamide phosphoribosyltransferase



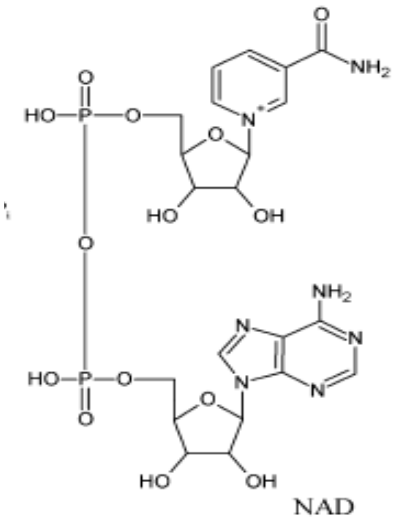
ATP

PP$_i$

NMNAT

Nicotinamide mononucleotide adenylyltransferase

Nmnat1 – nuclei
Nmnat2 – cytosol
Nmnat3 – mitochondria



NAMPT

- NAMPT – a molecule with diverse roles in physiology and pathophysiology
  - Key enzyme in NAD biosynthesis, ubiquitously expressed
  - Rate limiting enzyme in NAD biosynthesis
  - Highly regulated by NAD (feed-back) and ATP levels (stimulation)
  - Located both intracellularly (NAD biosynthesis) and extracellularly

PBEF: pre-B-cell colony-enhancing factor
VISFATIN

NAMPT

- **NAMPT is involved in TNF-α mediated insulin resistance via NAD/Sirt1/PTP1B pathway in 3T3-L1 adipocytes**

  - 3T3-L1 treated with TNF-α:
    - ↓ intracellular NAMPT mRNA and protein
    - ↓ NAD
    - ↓ SIRT1 activity
    - ↑ PTP1B (negative regulator of insulin signalling) mRNA and protein

Gouranton et al., Adipocyte (2014), 180-189

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