TEL AVIV UNIVERSITY

Designing Catalytic Polymeric Micelles

Roey J. Amir (Advisor of ESR 2 and training coordinator @ THERACAT)

School of Chemistry, TAU-Nano Center
and The Blavatnik Center for Drug Discovery,
Tel Aviv University

The Amir Research Group, Collaborators and Funding

TAU

RAG@TAU
Assaf Harnoy
Marina Buzhor
Merav Segal
Gadi Slor
Nitsan Papo
Nicole Edelstein
Lihi Ozeri

SAXS
Dr. Roy Beck
Rona Saharaban
Ram Avinery

MRI
Prof. Yoram Cohen
Dr. Liat Avram-Biton
Dr. Limor Frish

BIOLOGY
Prof. R. Satchi-Fainaro

TEM Dr. Einat Tirosh, Uri Hananel
Microscopy Dr. Yuval Ebenstein
Spectroscopy Dr. Tal Schwartz
Shenkar College Dr. Elizabeth Amir
SUPSI Switzerland Dr. Giovanni M. Pavan
IBEC Spain Dr. Lorenzo Albertazzi, Natalia Feiner

BLAVATNIK CENTER for Drug Discovery

ISRAEL SCIENCE FOUNDATION

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Tel Aviv University Center for Nanoscience & Nanotechnology
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Alon Fellowship

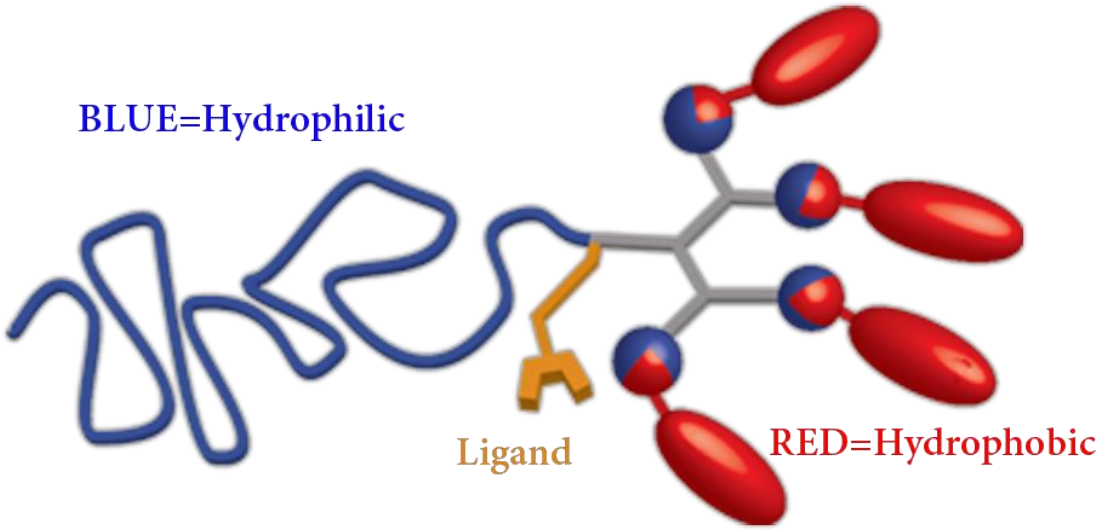
COUNCIL FOR HIGHER EDUCATION

THERACAT goals for ESR 2

1. **Develop synthetic methodology for amphiphilic polymers with a ligand**
2. **Metal complexation and self-assembly of micelles**
3. **Demonstrating catalytic capability and its optimization**

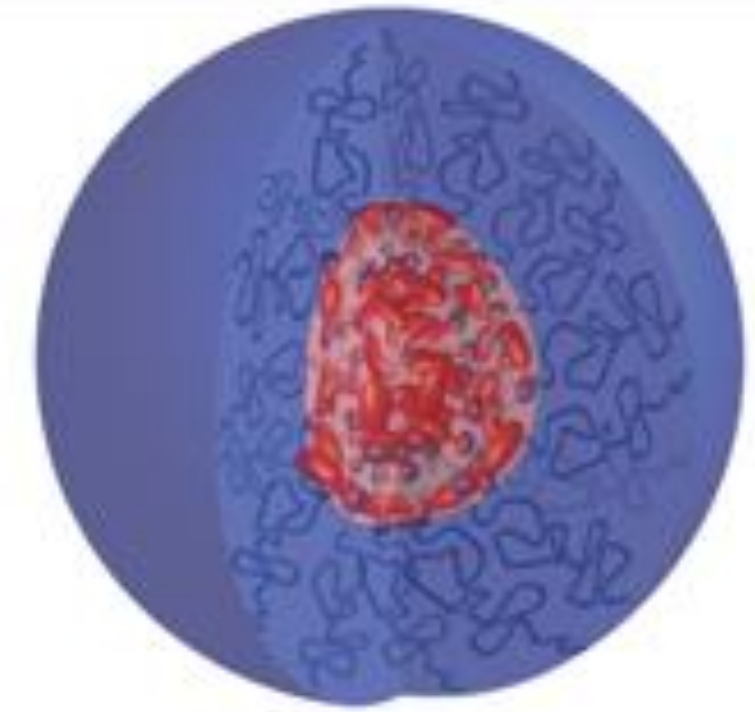
THERACAT goals for ESR 2

1. **Develop synthetic methodology for amphiphilic polymers with a ligand**



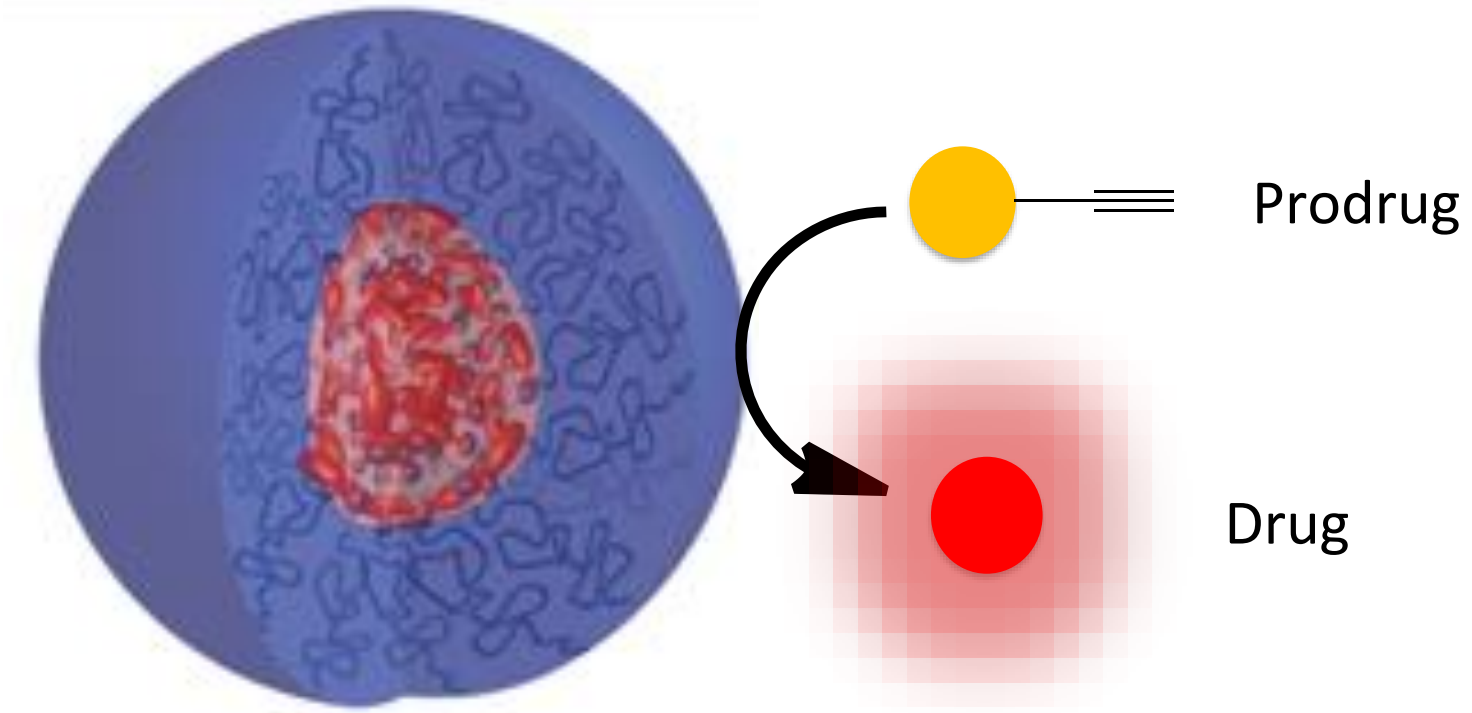
THERACAT goals for ESR 2

2. Metal complexation and self-assembly of micelles



THERACAT goals for ESR 2

3. Demonstrating catalytic capability and its optimization



Tuning amphiphilicity with high molecular precision

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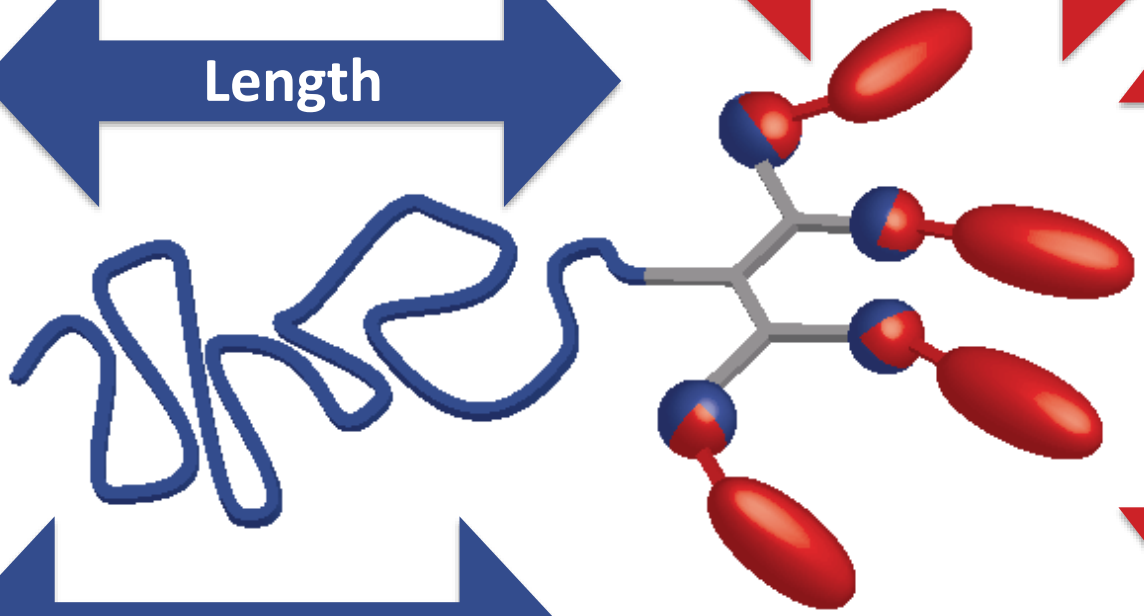
Harnoy et al. *JACS* **2014**

Hydrophobicity

Rosenbaum et al. *JACS* **2015**

Segal et al. *JACS* **2017**

Length



No. of end-groups

Harnoy & Slor et al. *OBC* **2016**

Harnoy et al. *Biomacromolecules* **2017**

Type of polymer

Slor et al. *In preparation*

Slor et al. *ChemComm* **2018**

Overall molecular weight

Rosenbaum et al. *Biomacromolecules* **2017**

Labeled polymeric assemblies designed to self-report their activation

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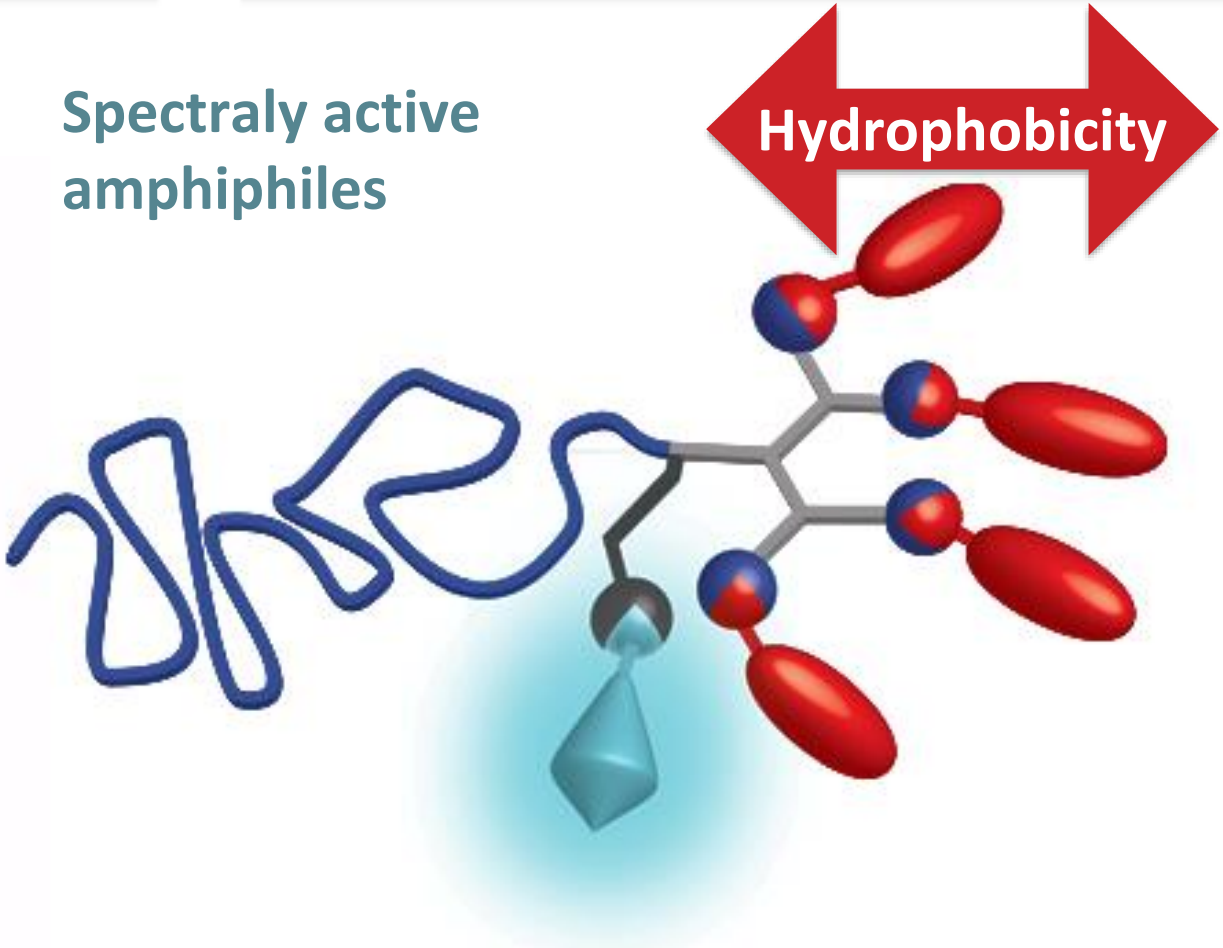
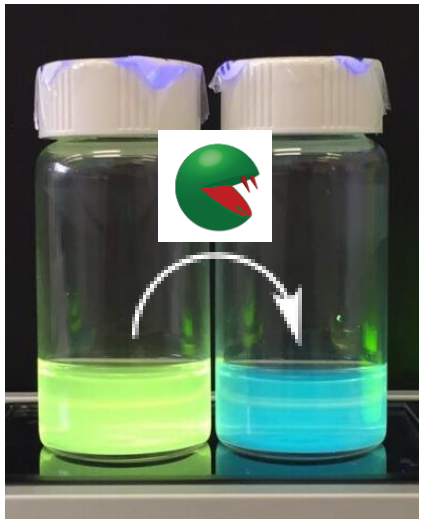
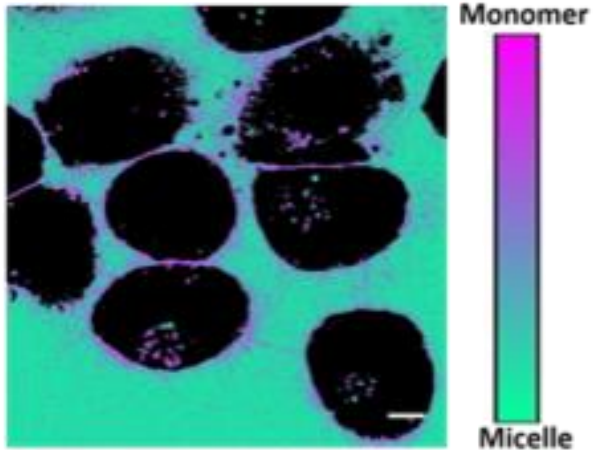
Spectraly active amphiphiles







Fluorescence - Buzhor et al. *Chem. Eur. J,* **2015**, Feiner & Buzhor, *JACS* **2017**

MRI - Buzhor et al. *J. Mat. Chem. B.* **2016**

THERACAT deliverables for ESR 2

D1.1: Polymeric amphiphiles with metal binding ligands

D1.2: Metal containing polymeric micelles

D1.3: Micelles with catalytic activity

The lab: polymer synthesis and characterization

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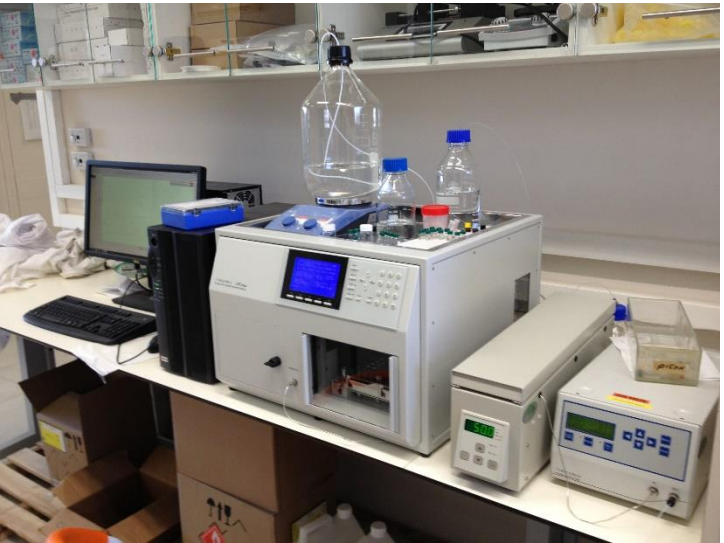
Chemistry lab

Schlenk lines

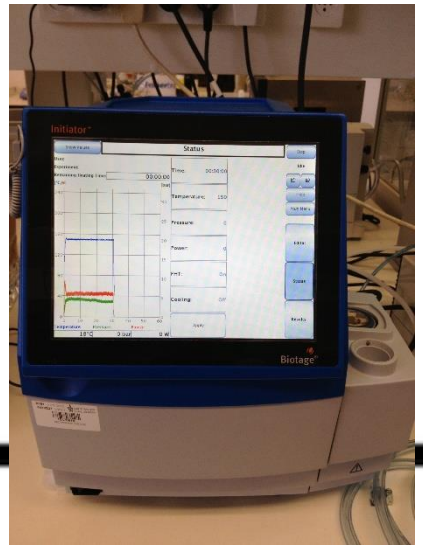
Preparative LC

GPC (IR+PDA)



HPLC (PDA)

Microwave reactor



The lab: characterizing self-assembly

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DLS

Automated sample preparation

TEM (@ TAU Nano Center)

Fluorimeter (temp controller+multi-cell holder)

Departmental facilities

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NMR

MALDI-TOF

TEM (@ TAU Nano Center)