

**CURRICULUM VITAE**

Name: Dr Tamar Ansbacher  
Born: 17.9.1979  
Citizenship: Israeli  
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I.D Number: 036020519  
Military Service: 1997-1999 (National service)

**Summary:**

Over the course of my professional career, I have held academic teaching and scientific positions that required a high level of scientific knowledge and creativity. I have teaching experience in a variety of chemical branches, teaching highly diverse students.

During my research career I have focused on exploring molecules and biomolecules, such as proteins and enzymes, using computational and bioinformatic tools. I have used these tools to explore ligand – protein interaction and reaction mechanisms.

I am organized and methodical and abide by a strong work ethic. Additionally, I have the ability to be a team leader and have excellent interpersonal and teaching skills.

**1. Academic Education**

- 2006-2012 Hebrew University, Jerusalem.  
Lise Meitner- Minerva Center for Quantum Computational Chemistry.  
Ph.D. research under the supervision of Dr. Avital Shurki.  
Thesis subject: *Copper Keepers – The unique copper(I) binding environment and transfer mechanism of the copper chaperones.*
- 2004-2006 Hebrew University, Jerusalem.  
The Fritz-Haber research Center for Molecular Dynamics.  
M.Sc. under the supervision of Prof. R. B. Gerber  
Thesis subject: *New organic noble gas molecules.*
- 2000-2003 Bar-Ilan University  
B.Sc. in "Biophysics" – interdisciplinary degree combining  
Physics, Biology & Chemistry. Graduated cum laude.

## 2. Academic Employment

2019-present Senior researcher at Dr. Maayan Gal's **new** lab, Department of Oral Biology, Sackler Faculty of Medicine, Tel Aviv University. Latest research focuses on **finding and developing new inhibitors for several cancer related proteins**.

2016-2019 Senior Researcher at Prof. Dan Major's lab, Chemistry Department, Bar-Ilan University. **Latest research** focused on applying **computational methods to study enzyme reactions**.

2013-present **Lecturer** at Hadassah Academic College, **teaching multiple branches of Chemistry** to undergraduate students.

2004-2010 Teaching Assistant at Hebrew University, mostly teaching lab techniques and skills in organic and physical chemistry.

## 3. Academic activities

Ph.D student:

- Established a computational method based on Quantum Mechanics, that can help study the coordination number of copper
- Explored the relationship between fluorophores and their transition dipole moment, aiming at designing efficient FRET based sensors

Senior researcher at Bar Ilan University:

- researching a synthetic strategy for manufacturing taxol – an important natural anti-cancer agent, applied computational methods to study enzyme reaction vs. gas phase reaction of Taxadiene Synthase – an enzyme that is involved in the biosynthetic pathway of Taxol
- Involved in the development of "Enzydock" an effective methodology for identifying probable binding modes of multiple ligand states along a reaction coordinate in an enzyme active site

Senior researcher at Tel Aviv University: (current position)

- Using computational methods such as virtual screening in the search for inhibitors for ICAM-1, a biosensor for a specific breast cancer. Such inhibitors are designed to participate in an efficient MRI imaging, as well as blocking important protein – protein interactions that are crucial for cancer progress.
- Collaboration with researchers from the Goldschleger School of Dental Medicine in the Sackler Faculty of Medicine, studying and improving the activity and stability of several collagenases, in order to functionalize them in dental care treatments.

## 4. Grants and Awards

2010 – Recipient of the Excellent Poster Prize in the QBIC-III conference. Cesky Krumlov, Czech Republic.

2010 – Recipient of the Katzir Travel Fellowships for Life Science Students.

2010 – Recipient of a travel grant from the David R. Bloom Center for Pharmacy, Hebrew University, Jerusalem.

2009 – Recipient of the Hebrew University School of Pharmacy prize for **excellence in research and teaching**.

2002 – Awarded the president's scholarship for undergraduate students at Bar-Ilan University.

## 5. Publications list

### **5.1 Peer reviewed papers**

1. EnzyDock: Protein–Ligand Docking of Multiple Reactive States along a Reaction Coordinate in Enzymes.

Susanta Das, Mor Shimshi, Keren Raz, Neta Nitoker Eliaz, Anil Ranu Mhashal, Tamar Ansbacher, Dan T.

Major. *J. Chem. Theory Comput.* **2019**, 15, 9, 5116-5134

2. Crystal structure of LepI, a SAM-dependent multi-functional enzyme in leporin biosynthesis.

Zhenyin Chang, Tamar Ansbacher, Lilan Zhang, Yong Yang, Tzu-Ping Ko, Guimin Zhang, Weidong Liu, Jian-Wen Huang, Longhai Dai, Rey-Ting Guo, Dan Thomas Major, Chun-Chi Chen. *Organic & Biomolecular Chemistry.* **2019**, 17, 2070-207

3. Slow-Starter Enzymes: Role of Active-Site Architecture in the Catalytic Control of the Biosynthesis of Taxadiene by Taxadiene Synthase.

Tamar Ansbacher, Yehoshua Freud and Dan Thomas Major. *Biochemistry* **2018**, 57, 3773–3779.

4. Catalytic Control in the Facile Proton Transfer in Taxadiene Synthase.

Yehoshua Freud, Tamar Ansbacher, and Dan Thomas Major. *ACS Catalysis* **2017**, 7, 7653–7657.

5. Copper-chaperones with di-coordinated Cu(I) - unique protection mechanism Ansbacher, T; Chourasia M; Shurki, A. *Proteins: Structure, Function, and Bioinformatics* **2013**, 81, 1411–1419.

6. Predicting the Coordination Number within Copper Chaperones: Atox1 as Case Study. Ansbacher, T; Shurki, A. *J. Phys. Chem. B* **2012**, 116, 4425-4432.

7. Calculation of Transition Dipole Moment in Fluorescent Proteins–Towards Efficient Energy. Transfer. Tamar Ansbacher, Hemant Kumar Srivastava, Tamar Stein, Roi Baer, Maarten Merckx and Avital Shurki, *Phys. Chem. Chem. Phys.* **2012**, 14, 4109-4117.

8. Can DFT Methods Correctly and Efficiently Predict the Coordination Number of Copper(I) Complexes? A Case Study Ansbacher, T; Srivastava, HK; Martin, JML, et al., *J. Comput. Chem.* **2010**, 31, 75-83.

9. New organic noble gas molecules: energetics, stability and potential energy surfaces of HCCXeCCH and HCCrCCH. Ansbacher, T; Gerber, RB, *Phys. Chem. Chem. Phys.* **2006**, 8, 4175-4181.

## **5.2 Papers and Abstracts - Proceedings of Conferences**

Participated and presented my work at several conferences in Israel and abroad, most recently at the Quantum Bio Inorganic Chemistry IV Conference, **Bath England, September, 2018.**

- ❖ The 76th meeting of the Israel Chemical Society, February 2011, Tel Aviv, Israel– Copper Keeper – A Unique Cu(I) Protection Mechanism Of The Copperchaperone Atox1, **Oral presentation.**
- ❖ The 2009 Computational Chemistry Symposium of The Lise Meitner and the Fritz-Haber Minerva Centers, December 2009, Jerusalem Israel, Copper-Keepers – Copper Chaperones and their Coordination Number to Cu(I), **Oral presentation.**
- ❖ Faraday Discussions 148 Conference: Spectroscopy, Theory and Mechanism in Bioinorganic Chemistry, July 2010 , University of Nottingham, U.K. Copper Keepers – Copper Chaperones and their Coordination Number to Cu(I) , Poster.
- ❖ The 75th meeting of the Israel Chemical Society, January 2010, Tel Aviv, Israel–Copper Keepers - Copper Chaperones and their Coordination Number to Cu(I) , Poster.
- ❖ The first meeting of The Institute for drug research at Hebrew University, October 2009, Jerusalem, Israel –Copper Keepers – Copper Chaperones and their Coordination Number to Cu(I) , Poster.
- ❖ The 74th meeting of the Israel Chemical Society, February 2009, Tel Aviv, Israel – Protein Orientation in Protein Metal Complex-FRET Based Determination, Poster.
- ❖ The 2008 Symposium of The Lise Meitner-Minerva Center, November 2008, Jerusalem, Israel – Protein Orientation in Protein Metal Complex-FRET Based Determination, Poster.
- ❖ The 73th meeting of the Israel Chemical Society, February 2008, Jerusalem, Israel –The Riddle of Cu(I) Coordination Number, summary, Poster.
- ❖ Safed Summer School on Density Functional Theory, September 2007, Safed, Israel –The Riddle of Cu(I) Coordination Number, summary, Poster.
- ❖ The 2007 Symposium of The Lise Meitner-Minerva Center June 2007, Jerusalem, Israel –The Riddle of Cu(I) Coordination Number, Poster.
- ❖ The 2007 Symposium of The Lise Meitner-Minerva Center, June 2007, Jerusalem, Israel –The Secrets of Cu(I)-S Binding, Poster.
- ❖ The 72th meeting of the Israel Chemical Society ,February 2007, Tel Aviv, Israel –The Riddle of Cu(I) Coordination Number, Poster.
- ❖ The 72th meeting of the Israel Chemical Society, February 2007, Tel Aviv, Israel – The Secrets of Cu(I)-S Binding , Poster.
- ❖ The 70th meeting of the Israel Chemical Society, February 2005, Tel Aviv, Israel– New organic noble gas molecules, Poster.