

## RESUME

Full name: **YOAV DAVID LIVNEY**

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Date and place of birth: 18.04.64 Haifa, Israel.

Marital status: Married to Talia, 3 children (Tsur 17, Reggev 22, Ofry 26)

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### **ACADEMIC DEGREES**

07/05/1991	B.Sc. (Summa Cum Laude) - Food Engineering and Biotechnology, Technion-Israel Institute of Technology, Israel
21/05/1995	M.S. - Food Science, University of Wisconsin, Madison, WI, USA
21/08/2002	Ph.D. - Food Engineering and Biotechnology, Technion- Israel Institute of Technology, Haifa, Israel

### **ACADEMIC APPOINTMENTS**

2012-	Associate Professor at the Dept. of Biotechnology and Food Engineering, The Technion, Israel institute of Technology.
7/2015-2/2016	Visiting Professor, Riddet Institute, Massey University, Palmerston North, New Zealand.
2007-2012	Senior Lecturer (Assistant Professor), at the Dept. of Biotechnology and Food Engineering, The Technion, Israel institute of Technology.
2004-2007	Lecturer, at the Dept. of Biotechnology and Food Engineering, The Technion, Israel institute of Technology.
2002-2004	Post-Doctoral Research Associate, with Prof. Douglas G. Dalglish, Dept. of Food Science, University of Guelph, Guelph, Ontario, Canada
1998-2002	Adjunct Teacher, Dept. of Food Engineering and Biotechnology, Technion- Israel Institute of Technology, Haifa, Israel

### **PROFESSIONAL EXPERIENCE**

1995-1998	Strauss Dairies Ltd. Cheese Product Development Manager.
1991-1992	Quarg Dept. Technologist, and Manager of Quarg Production Dept., Strauss Dairies Ltd.
1990-1991	Quality Control Manager, Strauss Dairies Ltd.

### **RESEARCH INTERESTS**

- Physical chemistry of biomacromolecules in food and biotechnology
  - Water-structure effects of low molecular weight solutes, and its impact on macromolecules.
  - Biopolymers, gels, and their interactions with low molecular weight components.
  - Physical chemistry, structure, interactions, recovery and functional properties of food proteins, with emphasis on new and renewable sources.

- Nanotechnology: Nature-inspired nano-delivery systems for nutraceuticals and drugs, based mainly on proteins and polysaccharides.

### **TEACHING EXPERIENCE**

- 2005-present Thermodynamics in Biotechnology & Food Engineering  
(undergraduate, 4 credit points)
- 2005-present Structure and Properties of Biological and Food Materials  
(undergraduate, 3.5 credit points)
- 2006-present Selected topics in Food Technology A: Course Coordinator
- 2007-present Selected topics in Food Technology B: Course Coordinator
- 2006 Physical Chemistry of Foods (Graduate, 2 credit points,  
ME Program)

#### **Teaching assistant:**

- 1998-2002 Thermodynamics in Food Engineering (undergraduate)
- 2001 Separation and Recovery Processes in Biotechnology  
(undergraduate + graduate).
- 1999-2000 Packaging of Foods and Medicines (undergraduate)

### **TECHNION ACTIVITIES & RESPONSIBILITIES**

- 2016- Coordinating the Technion's activities within the European consortium EIT-Food KIC (Knowledge Innovation Community).
- 2014-15 Chairman of the Norman Seiden Nanoscience & Nanotechnology Multidisciplinary Graduate Studies Program.
- 2012-14 Graduate Studies Coordinator, Norman Seiden Nanoscience & Nanotechnology Multidisciplinary Graduate Studies Program.
- 2007-14 Academic Co-head of the Russell Berrie Nanoparticles & Nanometric Systems Characterization Center.
- 2010-14 Faculty Representative in the steering committee for the establishment of the International School at the Technion.
- 2004-7 Quality Assurance and Dependability – Graduate program committee member.
- 2006 Departmental Coordinator of the Technion's "Researcher's Night" event funded by the European Union, at the National Museum of Science & Technology.
- 2005 Faculty representative in the committee for evaluation of the basic Math courses at the Technion.

### **DEPARTMENTAL ACTIVITIES**

- 2017- Graduate Studies coordinator- Biotechnology & Food Eng. Dept.
- 2017- Faculty representative in the Polymers graduate studies program.
- 2014 – 2015 Second Year B.Sc. Students' Consultant.
- 2012 – 2014 Faculty representative at Chemical Engineering Faculty meetings
- 2012 – 2013 Fourth Year B.Sc. Students' Consultant 2005 – 2007  
Undergraduate Seminar Forum Coordinator
- 2011 – 2012 Third Year B.Sc. Students' Consultant.
- 2010 – 2012 Faculty representative in the "Northern Consortium" (Technion-Ort Braude-Migal) initiative to establish a National Food Research Institute in the Galilee.
- 2010 – 2011 Second year B.Sc. Students' Consultant.
- 2009 - 2010 First year B.Sc. Students' Consultant.
- 2007 - 2009 Departmental Seminar Coordinator

**PUBLIC PROFESSIONAL ACTIVITIES**

- 2018 Member of a grant review committee- Israeli Ministry of Agriculture
- 2012 –2015 Member of a "Malag" (Israeli Council for High Education) committee for evaluation of B.Sc. study programs in Nutrition.
- 2005 - 2016 Member of the review committee in "The Milk Consulate" ("Moetset Hechalav").
- 2010 Member of the BARD review committee
- 2006 – 2010 Member of the Management Committee of European Concerted Research Action designated as COST #865: "Bioencapsulation multiscale interaction analysis".

**MEMBERSHIP IN PROFESSIONAL SOCIETIES**

- Member of the European Academy of Food Engineering (EAFE) and EAFE key contact for Israel!
- IFT-Institute of Food Technologists: elected as Professional Member (00094244).
- ACS- American Chemical Society, (Member No. 30100865)
- ISFE-International Society of Food Engineering (Member No. 001124)
- IUFOST-International Union of Food Science & Technology
- ICS- Israel Chemical Society
- AOAC-International- American Organization of Analytical Chemists- International
- The Israeli Institute of Chemical Engineers (IChE)
- ISPP-The Israeli Society for polymers and Plastics
- The Israeli Controlled Release Society
- The Innovation Forum
- The Russell Berrie Nanotechnology Institute at the Technion

**FELLOWSHIPS, AWARDS AND HONORS**

- 1988-1990 President's list of honors for scholastic achievements
- 1990 Certificate of Excellence in Academic Studies granted by the Education and Culture Committee of Israel's Parliament, the Knesset
- 1999, 2000 Teaching Excellence Awards for teaching assistants.
- 2001 Special Excellence Grant from the Miriam & Aaron Gutwirth Memorial foundation.
- 2001 Excellence Award in Memory of Prof. Arie Litan.
- 2001 Certificate of Excellence in Academic Studies granted by the Education and Culture Committee of the Knesset.
- 2001 Summer scholarship for excellent students from the Technion Graduate School
- 2002 Special Excellence Grant from the Miriam & Aaron Gutwirth Memorial foundation.
- 2003 Elected as a Professional Member of the Institute of Food Technologists, The Society for Food Science and Technology.
- 2005 The Leah and Donald Lewis Academic Lectureship.
- 2006 The Leah and Donald Lewis Academic Lectureship.
- 2009 The Alexander Goldberg Research Prize
- 2013 Certified Food Scientist (CFS) among the inaugural class of recipients.
- 2016 Yanai Prize to the Faculty of Biotechnology & Food Engineering for Teaching excellence.

2018 Teaching Excellence Certificate of recognition from the Technion  
(Thermodynamics in Biotechnology & Food Engineering)

## **GRADUATE STUDENTS**

### **Ph.D.**

#### **Completed Theses:**

1. Alina Shapira, 2012, (RBNI Nanoscience & Nanotechnology Program), Targeted nano systems for oral delivery of cancer therapeutics. Supervisor: Dr. Yoav D. Livney, co-Supervisor: Prof. Yehuda G. Assaraf.
2. Avi Shpigelman, 2012, (Interdisciplinary Biotechnology Program) Protein Nano-Vehicles for Delivery of EGCG from Green Tea for Preventive Medicine. Supervisor: Dr. Yoav D. Livney. (Currently Asst. Prof. Shpigelman is a faculty member at our department of Biotechnology & Food Engineering at the Technion!)
3. Gal Israeli, 2016, Protein interactions with nanocrystals of hydrophobic bioactives: Towards application as delivery systems. Supervisor: Prof. Yoav D. Livney.
4. Ravit Edelman, 2016 (Interdisciplinary Biotechnology Program), Hyaluronic acid-based quadrugnostic nanoparticles for cancer therapy. Supervisor: Prof. Yoav D. Livney, co-Supervisor: Prof. Yehuda G. Assaraf.
5. Yifat Cohen, 2018, Bioavailability of lipophilic bioactives in protein nanovehicles, compared to that in fat. Supervisor: Prof. Yoav D. Livney.

#### **Theses in Progress:**

6. Yedidya Zaguri, expected 2018, Enzymatically-tailored sugar beet pectin nanovehicles of bioactive delivery. (RBNI Nanoscience & Nanotechnology Program). Supervisor: Prof. Yoav D. Livney.
7. Maya Weber, expected 2018, (RBNI Nanoscience & Nanotechnology Program),  $\beta$ -Casein Based Nano-vehicles for Oral Delivery of Targeted Chemotherapeutic Combinations to Overcome Multidrug Resistance in Cancer. Supervisor: Prof. Yoav D. Livney, co-Supervisor: Prof. Yehuda G. Assaraf.
8. Shira Rimon, Expected 2018, Novel Targeted Oral Anti-Cancer Drug Delivery Systems Based on Aptamer-Decorated Polymeric Nanovehicles. Supervisor: Prof. Yoav D. Livney, co-Supervisor: Prof. Yehuda G. Assaraf.
9. Meital Malamud, expected 2018, Recovery of proteins and starch from macro algae for food application. Supervisor: Prof. Yoav D. Livney

### **M.Sc.**

#### **Completed Theses:**

1. Efrat Semo, 2007, Casein Micelle as a Natural Nano-Capsular Vehicle for Nutraceuticals, supervisor: Yoav D. Livney. (Currently at Tapugan Industries Ltd., Sderot, Quality assurance Manager)
2. Nadav Ron, 2007, Beta Lactoglobulin as a Nano-Capsular Vehicle for Health-Promoting Hydrophobic Nutraceutical Substances. Supervisor: Dr. Yoav D. Livney. (Currently at Strauss, as bakery and cereal product development technologist)
3. Avi Shpigelman, 2007, Mechanisms of Saccharide Modulation of Protein Behavior in Aqueous Media. Supervisor: Dr. Yoav D. Livney. (Currently doing Post Doc in Belgium)
4. Inna Shechter, 2007, Molecular aspects of co-solvent effects on volume phase transition in poly (N-isopropylacrylamide) solutions, Supervisor: Associate Prof. Yaron Paz, Co-supervisor: Dr. Yoav D. Livney. (Currently, a process engineer in Tower)

5. Roe Pinhassi, 2008, Nano Particles for Targeted Delivery and Target-Activated Release of Anti-Cancer Drugs. Supervisor: Dr. Yoav D. Livney, Co-supervisor: Prof. Yehuda G. Assaraf. (worked in Tivoli, as a product development manager, and currently doing a PhD in the Technion faculty of Biology, working on "Green Energy")
6. Tamar Shragai (Volach), 2007, Anti-microbial active-packaging for meat products. Supervisor: Prof. Joseph Miltz, Co-Supervisor: Dr. Y. D. Livney.
7. Patricia Zimet, 2009, Milk Protein Based Nano-Vehicles for Omega 3-Polyunsaturated Fatty Acids. Supervisor: Dr. Yoav D. Livney.
8. Renata Kisiliak, 2010, The Mechanisms of Thermal Stabilization of Proteins by Sugars in Aqueous Solutions. Supervisor: Dr. Yoav D. Livney. (Currently studying for PhD in Bar Ilan University).
9. Gilad Markman, 2011, Protein-polysaccharide conjugates for delivery of hydrophobic nutraceuticals. Supervisor: Dr. Yoav D. Livney.
10. Michal Haham, 2011, Bioavailability and stability of vitamin D encapsulated within Casein Micelles. Supervisor: Dr. Yoav D. Livney.
11. Yonatan Levinson, 2014, Soybean and Milk Protein Nanoparticles for Protecting and Delivering Vitamin D as a Model Lipophilic Nutraceutical. Supervisor: Prof. Yoav D. Livney.
12. Shlomit Levi, 2015, (RBNI Nanoscience & Nanotechnology Program). Supervisor: Dr. Yoav D. Livney.
13. Adi Seifert, 2018, Recovery of functional biopolymers from Whey. Supervisor: Prof. Yoav D. Livney.

#### **Theses in Progress:**

14. Yarden Abuhassira, expected 2019, A Novel Nanotechnology for Enhancing Bioavailability of Insoluble Bioactives Using Astaxanthin as a model. Supervisor: Prof. Yoav D. Livney

#### **RESEARCH GRANTS**

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|-------------|---|
| 2005        | <b>German-Israel Foundation</b> , Young Scientists Program, Casein Micelle as a Natural Nano-Capsular Vehicle for Nutraceuticals, €40,000, Dr. Y. D. Livney - PI                                    |
| 2005 – 2008 | <b>Israel Science Foundation</b> , Mechanisms of Saccharide Modulation of Protein Behavior in Aqueous Media, \$130,300, Dr. Y. D. Livney - PI   |
| 2005        | <b>Israel Science Foundation</b> , New Researcher Lab Equipment Grant \$140,000, Dr. Y. D. Livney - PI  |
| 2006 – 2007 | <b>Danone Institute Grant</b> , Beta Lactoglobulin as a Nano Capsular Vehicle for Health-Promoting Hydrophobic Nutraceutical Substances, \$12.500, Dr. Y. D. Livney - PI                            |
| 2007 – 2011 | <b>Aba Kahani Memorial Donation</b> , Targeted nano systems for oral delivery of cancer therapeutics \$75,000, Dr. Y. D. Livney – PI, Prof. Y. G. Assaraf, Co-PI                                    |
| 2007 – 2008 | <b>Tnuva Research Institute</b> , Nano-encapsulation of omega 3 (DHA) within Casein Micelles, 85,000 NIS, Dr. Y. D. Livney - PI   |
| 2008 – 2010 | <b>Ministry of Health &amp; Dairy Council</b> , Bioavailability and stability of vitamin D, nanoencapsulated in casein micelles, 200,000 NIS, Dr. Y. D. Livney – PI, Prof. Sophia Ish-Shalom co-PI. |
| 2009 – 2010 | <b>Nofar, (in collaboration with Coca Cola)</b> , Core-Shell Nano-Capsules for Protection of Water-insoluble Nutraceuticals in Clear Drinks, 466,600 NIS Dr. Y. D. Livney – PI                      |

- 2010 – 2011 **Israel Dairy Council and the Ministry of Health**, Bioavailability of vitamin D encapsulated in casein micelles, compared to its bioavailability in the milk-fat, 100,000 NIS, Dr. Y. D. Livney – PI, Prof. Sophia Ish-Shalom co-PI.
- 2011 – 2012 **Nofar, (in collaboration with Solbar Plant Extracts Ltd.)** Soybean proteins, as nanovehicles for health- promoting compounds, 372,800 NIS, Dr. Y. D. Livney – PI.
- 2012 - 2013 **Israel Dairy Council and the Ministry of Agriculture**, Bioavailability of vitamin D encapsulated in casein micelles, compared to its bioavailability in a synthetic surfactant, 80,000 NIS, Dr. Y. D. Livney – PI, Prof. Sophia Ish-Shalom co-PI.
- 2013 - 2015 **Italy-Israel Cooperation Fund (Ministry of Science, Technology & Space)**, Hyaluronic-acid based quadrugnostic nanoparticles for overcoming cancer drug resistance and for diagnostics (based on Iron Oxide super-paramagnetic NPs). 200,000 NIS Prof. Y. D. Livney – PI, Prof. Elena Vismara PI, Prof. Y. G. Assaraf, Co-PI.
- 2014-2015 **Umbrella Cooperation Fund-** Multimodal glycosylated serum albumin-based theranostic nanoparticles for overcoming tumour vascularization and multidrug resistance. \$30,000 Prof. Y. D. Livney – PI, Prof. Y. G. Assaraf, PI (Collaborating PIs: Prof. Lothar Elling, & Prof. Stefan Jockenhövel)
- 2015-2017 **Tnuva-Baemek** – Health-Promoting Components in Whey: Quantification and Recovery. 380,000 NIS
- 2015 **Australian synchrotron beamtime:** “Milking iron for all its worth: speciation of iron in casein micelles reassembled with controlled Fe:Ca stoichiometry” PI: Prof. Geoff Jameson, coPIs: Prof. Yoav D. Livney, Prof. H. Singh, D. Chris Glover, Dr. Ashling Ellis.
- 2016 **Moetzet Hechalav & Misrad Habriut**, The bioavailability of EGCG protected by the milk protein-  $\beta$ -lactoglobulin and its role in prevention of obesity and insulin resistance. (Collaboration with Prof. Eddy Karnieli) 120,000 NIS
- 2016-2019 **Niedersachsen- VolkswagenStiftung**, Novel Targeted Oral Anti-Cancer Drug Delivery Systems Based on Aptamer-Decorated Polymeric Nanovehicles (Collaborating PIs: Dr. Johanna Walter, Leibniz University Hannover, Institute of Technical Chemistry; Prof. Yoav D. Livney & Prof. Yehuda G. Assaraf- Biology Dept., Technion). 249,000€
- 2016-2017 **Ministry of Health-Fund for Food and Nutrition with Implications on Public Health-** Extraction of functional proteins from macroalgae using non-thermal pulsed electric fields. (PI: Dr. Alex Golberg, Tel Aviv University; Co-Is: Prof. Y.D. Livney, Biotechnology & Food Eng. Technion, and Dr. Alvaro Israel, Israel Oceanographic & Limnological Research Institute, Ltd.) 150,000NIS.
- 2017 **Australian Nuclear Science & Technology Organization (ANSTO) Brag Institute beamtime:** Milking iron for all its worth: nanostructure of iron-enriched casein micelles re-assembled with controlled Fe:Ca stoichiometry. PI: Prof. Y.D. Livney, CoPIs: Prof. Geoff Jameson, Prof. H. Singh, Dr. Ashling Ellis, Dr. Bridget Ingham, Prof. Alistair Carr, Prof. Mark Waterland, Dr. Elliot Gilbert.
- 2017-2019 **Ministry of Science-** Securing food supply by producing starch from marine macroalgae with pulsed electric fields; (PIs: Dr. Alex Golberg, Tel Aviv University; Prof. Y.D. Livney, Biotechnology & Food Eng.

Technion, and Dr. Alvaro Israel, Israel Oceanographic & Limnological Research Institute, Ltd.) 1,200,000NIS (.

- 2017-2018 **Nofar (in collaboration with Frutarom & Algalo)**, A Novel Technology for Enhancing Bioavailability of Insoluble Bioactives Using Astaxanthin as a model. PI: Yoav D. Livney. 550,000NIS
- 2018 EIT Food- Food Solutions: Building Student skills in micro-algae processing, component characterization and innovative product development. 250,000.00 € (116,566€ to Technion).

#### **Internal Technion grants:**

- 2012-2015 Blechman fund for cancer research- Novel approach for targeted delivery: oral quadrugnostic chemotherapy. \$1500 Prof. Y. D. Livney – PI, Prof. Y. G. Assaraf, Co-PI.
- 2013-2015 Manlam Fund- Hyaluronic acid-based quadrugnostic nanoparticles for overcoming cancer drug resistance \$1500 Prof. Y. D. Livney – PI, Prof. Y. G. Assaraf, Co-PI.
- 2013-2015 Rubin Fund for Scientific- Medical Research- “MISSILE-O.D.S.”: Multi-Stage Smart Interpenetrating Liver-Evading Oral Delivery System for targeted chemotherapy. \$4000, Prof. Y. D. Livney – PI, Prof. Y. G. Assaraf, Co-PI.
- 2016-2017 Star-Michigan Fund- Novel Nanotech Antioxidant Cocktail for Protection from Ionizing Radiation during Medical Diagnostic Procedures. 27,347\$, PIs: Prof. Yoav D. Livney and Prof. Miguel Gorenberg.

#### **SIGNIFICANT PROFESSIONAL PROJECTS**

- 1990-1991 Technological responsibility for the design and operation of the first production line of “Gamadim”-kids’ quarg cheese product, In Strauss Dairies, Naharia.
- 1995-6 Management, design, and performance of a successful production scale full-factorial-design project for optimizing the quality of Strauss Quarg-cheese (“Ski”) in Strauss Dairies, Naharia. (Consequently, Ski moved up to first place among competitors products, based on independent external evaluations)
- 1995-6 Developing the first low fat (5%) cream cheese product in Israel (“Symphonia”), in Strauss Dairies, Naharia.
- 1996-8 Participating in the design team planning the new Strauss Dairy in Bar-Lev site.

#### **RESEARCH ACHIEVEMENTS**

##### **The main research themes of my group are:**

- 1) ***Water-structure effects of cosolutes on biopolymers:*** Seek fundamental understanding of the chemo-physical interactions between biopolymers, low molecular weight cosolutes, and water.
- 2) ***Nano-delivery systems:*** Apply the above knowledge in the rational design and engineering of nature-inspired targeted nanodelivery systems for health-promoting bioactive molecules, like nutraceuticals and drugs.
- 3) ***Functional biopolymers:*** Physical chemistry, structure, functional properties and recovery of new food biopolymers from renewable sources.

**Our main research achievements include:**

(\* Graduate students supervised by Dr. Livney; ^Undergraduate project students supervised by Dr. Livney; # Research associates in Livney's group)

- ***Casein micelles as nano-vehicles:*** We have introduced the potential of casein micelles to serve as nano-vehicles for added hydrophobic (and other) nutraceuticals (e.g. vitamin D) that can be used for enrichment of staple foods (mainly low or non-fat) (9. Semo\* et al 2007; Patent 1- granted). Moreover, we found that the micelles can protect the encapsulated bioactive against thermal degradation, against UV light induced photochemical degradation, and during shelf life in cold storage, and that bioavailability of the vitamin in humans (successfully completed clinical trial) is at least as good as in a commercial food supplement based on synthetic surfactants (25. Haham\* et al. 2012 Food & Function). We recently showed also that casein micelles with or without the use of calcium and phosphate, may encapsulate and protect DHA (20. Zimet\* et al. 2011 Food Hydrocolloids).
- ***Beta lactoglobulin-polysaccharide nanocomplexes as vehicles:*** We have introduced a novel nanodelivery technology for hydrophobic nutraceuticals, based on beta lactoglobulin- a molecular carrier of hydrophobic compounds, and an excess of pectin, which brought about the formation of stable electrostatic nanocomplexes useful for enrichment of clear acid beverages (Ron\*, N. M.Sc. thesis 2007; 17. Ron\* et al 2010, Patent 2, granted). We were apparently the first to show that beta lactoglobulin can bind DHA, the important omega-3 fatty acid. The  $\beta$ -lg pectin nanocomplexes provided protection against DHA degradation during accelerated shelf life study (11. Zimet\* et al 2009,).
- ***Heated beta lactoglobulin as a vehicle for water-soluble bioactives:*** We introduced a novel technology for nanoencapsulation of EGCG- a highly potent polyphenolic nutraceutical with numerous attributed health benefits, which is water soluble (thus difficult to nanoencapsulate) within heat-denatured beta lactoglobulin nanoparticles. The nanoparticles formed provided good protection against EGCG degradation, and kept the system completely transparent. Moreover, the encapsulation significantly suppressed the bitter & astringent tastes of EGCG (15. Shpigelman\* et al 2010; Pending patent 5. 2010; 24. Shpigelman\* et al. Food Hydrocolloids).
- ***Beta casein nanoparticles for oral delivery of anticancer drugs:*** We have harnessed the self-assembly of beta casein for nanoencapsulation of hydrophobic anticancer drugs, e.g. mitoxantrone, paclitaxel, irinotecan, docetaxel and vinblastine, and demonstrated release of paclitaxel for treatment of gastric carcinoma (one of the leading causes of death among cancer patients), upon simulated gastric digestion, and no cytotoxicity before digestion. (13, 16, 18 and 22 Shapira\* et al, Pending patent 4, 2008).
- ***Novel arabinogalactan-based targeted delivery system for chemotherapy:*** We have managed to form a novel polymeric delivery system for anti-cancer drugs, based on arabinogalactan (a highly water soluble polysaccharide from the Larix tree). The system has both an active targeting mechanism, based on folic acid, and a target-activated release mechanism- by connecting the drug via an endosomally cleavable peptide linker, which remains intact in the circulation. We have successfully demonstrated the efficacy and selectivity of the system on cell lines (14. Pinhassi\* et al 2010).
- ***Binding of a chaotropic salt (KSCN) to PNIPA:*** To advance the understanding of the mechanism of salting-in salts effects, we have provided previously unreported



calorimetric evidence for the binding of a chaotropic salt (KSCN) to poly-n-isopropylacrylamide (PNIPA), a model for proteins, using sensitive isothermal microcalorimetry, and provided a new explanation for the entropic binding mechanism (12. I. Shechter\* et al. 2010).

- **Mechanisms of saccharides effect on polymers in aqueous systems:** Studying the mechanisms of protection of saccharides against protein denaturation, and using PNIPA as a model for proteins, we have shown a correlation between the hydration number of different sugar isomers and their effect on the phase transition temperature of PNIPA (10. Shpigelman\* et al, 2007; 19. Shpigelman\* et al., Colloid and Polymer Science) and on the deswelling of PNIPA gel (21. N. Manukovsky^ et al, 2011).
- **Mechanisms of saccharides effect on water structure, and on protein denaturation:** Using modeling, atomic molecular simulations, and advanced instrumental techniques, we have proposed and provided substantial support to a novel **templating mechanism** of saccharides on cooperative hydrogen bonding of their vicinal water. The better a sugar fits into an ideal water structure, as embodied in hexagonal ice, the better a template it will be, and consequently the higher its hydration number will be, and the stronger its protective effect against thermal denaturation of a globular protein (32. Edelman\* et al, Food Hydrocolloids 2015).
- **Novel Maillard-reaction based protein-polysaccharide conjugates, as nanovehicles for hydrophobic nutraceuticals in clear beverages:** We developed novel Maillard conjugates of milk- or vegetable-proteins and oligosaccharides, and demonstrated the binding of hydrophobic nutraceuticals, and the protection conferred by the conjugate-based nanovehicles in clear solutions, applicable for nutraceuticals enrichment of clear beverages. (23. G. Markman\* & **Y. D. Livney**, 2012)
- **Biphasic co-assembly for creating novel functional nanostructures: Formation and entrapment of hydrophobic bioactive nanocrystals within hydrophobin nano-shells.** We have managed to control the size of crystals of hydrophobic nutraceuticals and to nanoencapsulate them using hydrophobins-fungi based proteins, while providing significant protection to the hydrophobic nutraceutical against degradation. This is apparently first work showing the potential of hydrophobins for nanoencapsulation application in food (27. G. Israeli\* and **Y. D. Livney**, 2014).
- **The effect of stereoisomeric monosaccharides on the protein self-assembly.** We studied the effect of glucose, galactose and mannose on the Micellization of  $\beta$ -Casein, as a model self-assembling protein, using pyrene as a fluorescent probe for hydrophobic domain formation and we developed a mathematical model to interpret the results. The following order was found in effectiveness of sugars in promoting protein self-assembly: glucose>galactose>mannose. This order correlates with the ratio of hydrophobic to hydrophilic surface of the sugars and with their elution times on a polyacrylamide size exclusion column (31. Ofer Seter^ & **Y. D. Livney**, PCCP 2015).
- **The protective effect of sugars against EGCG oxidation.** The mechanisms of protective effect of different sugars against EGCG oxidation were studied, suggesting a combined effect comprising ion chelation, decrease of oxygen solubility, and direct binding of sugars to EGCG. (26. A. Shpigelman\*, Adi Zisapel^, Yifat Cohen\* and **Y. D. Livney** 2013)
- **Bioavailability of hydrophobic nutraceuticals in protein nanoparticles compared to that in milk-fat, or to a synthetic surfactant:** in a recently completed clinical trial with 90 volunteers, we found as high bioavailability of

vitamin D in protein nanoparticles as in milkfat (38. Y. Cohen\*, S. Ish-Shalom & and **Y. D. Livney** 2017). In another clinical study we found that VD3 bioavailability in rCM was as high as that in the synthetic emulsifier within a nonfat yoghurt, while the sensory and rheological properties of the rCM were superior. (34. Levinson et al. 2016)

## **PUBLICATIONS**

### **Theses**

1. M.S.: Recovery of Proteins from Thermoquarg Whey by Microfiltration of Carboxymethyl Cellulose Complexes. (1995), Supervisor: Prof. Robert L. Bradley, Food Science, University of Wisconsin, Madison, WI, USA
2. Ph.D.: Mechanisms of Swelling and Contraction of Nonionic Hydrophilic Polymer Gels in Presence of Low Molecular Weight Co-Solutes. (2002), Supervisors: Prof. Uri Cogan & Prof. Shimon Mizrahi, Food Engineering and Biotechnology, Technion-Israel Institute of Technology, Haifa, Israel.

### **Refereed papers in professional journals**

#### **Published papers**

(Corresponding author; \* Graduate students supervised by Prof. Livney;

^ Undergraduate students supervised by Prof. Livney, # Research associates in Livney's group)

1. **Y. D. Livney**, D. P. Donhowe, R. W. Hartel, Influence of Temperature on Crystallization of Lactose in Ice cream, *International Journal of Food Science and Technology* 30 (1995) 311-320. (FOOD SCIENCE & TECHNOLOGY 54/128) IF 1.223.
2. **Y. D. Livney**, O. Ramon, E. Kesselman, U. Cogan, S. Mizrahi, and Y. Cohen, Swelling of Dextran Gel and Osmotic Pressure of Soluble Dextran in the Presence of Salts, *Journal of Polymer Science, Part B. Polymer Physics* 39 (2001) 2740-2750. (POLYMER SCIENCE 35/79) IF 1.3.
3. **Y. D. Livney**, I. Portnaya, B. Faupin<sup>^</sup>, O. Ramon, Y. Cohen, U. Cogan, S. Mizrahi, Interactions between Inorganic Salts and Polyacrylamide in Aqueous Solutions and Gels. *Journal of Polymer Science: Part B: Polymer Physics* 41 (2003) 508 –519. (POLYMER SCIENCE 35/79) IF 1.3.
4. **Y. D. Livney**, I. Portnaya, B. Faupin<sup>^</sup>, L. Fahoum<sup>^</sup>, O. Ramon, Y. Cohen, S. Mizrahi, and U. Cogan, Interactions of Glucose and Polyacrylamide in Solutions and Gels, *Journal of Polymer Science: Part B: Polymer Physics* 41 (2003) 3053-3063. (POLYMER SCIENCE 35/79) IF 1.3.
5. **Y. D. Livney**, E. Verespej, and D. G. Dalgleish, Steric Effects Governing Disulfide Bond Interchange during Thermal Aggregation in Solutions of  $\beta$ -Lactoglobulin B and  $\alpha$ -lactalbumin. *Journal of Agricultural and Food Chemistry* 51 (2003) 8098-8106. (FOOD SCIENCE & TECHNOLOGY 10/128, CHEMISTRY, APPLIED 8/70, AGRICULTURE, MULTIDISCIPLINARY 2/55) IF 2.816.
6. **Y. D. Livney**, and D. G. Dalgleish, Specificity of Disulfide Bond Formation during Thermal Aggregation in Solutions of  $\beta$ -Lactoglobulin B and  $\kappa$ -Casein A. *Journal of Agricultural and Food Chemistry* 52 (2004) 5527-5532. (FOOD

7. **Y. D. Livney**, A. Schwan, and D. G. Dalgleish, A Study of  $\beta$ -Casein Tertiary Structure by Intramolecular Crosslinking and Mass Spectrometry. *Journal of Dairy Science* 87 (2004) 3638-3647. (AGRICULTURE, DAIRY & ANIMAL SCIENCE 3/50, FOOD SCIENCE & TECHNOLOGY 11/118) IF 2.463.
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43. Shira Engelberg\*, Julia Modrejewski, Johanna G. Walter, **Yoav D. Livney**, and **Yehuda G. Assaraf**, Cancer cell-selective clathrin-mediated endocytosis of aptamer-decorated nanoparticles, *Oncotarget*. 2018; 9:20993-21006. <https://doi.org/10.18632/oncotarget.24772>
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46. Meghanath Prabhu, Alexander Chemodanov, Ruth Gottlieb, Meital Kazir, Omri Nahor, Michael Gozin, Alvaro Israel, **Yoav D. Livney**, Alexander Golberg, Starch from the sea: the green macroalga *Ulva* sp. as a potential source for sustainable starch production (Under Review).
47. Yedidya Zagury, Meital Kazir, Yoav D. Livney, Improved antioxidant activity, bioaccessibility and in-vivo bioavailability of EGCG by delivery in  $\beta$ -lactoglobulin particles (Under review)

48. Maya Bar-Zeev, Daniel Kelmansky, Yehuda G. Assaraf, **Yoav D. Livney**,  $\beta$ -Casein micelles for oral delivery of SN-38 and elacridar to overcome BCRP-mediated multidrug resistance in gastric cancer (Under review)
49. Adi Seifert, Shay Freilich, Yechezkel Kashi, **Yoav D. Livney**, Next-Generation Prebiotics: Protein-Oligosaccharide Conjugates, (Submitted)

### Published Review papers

1. **Y. D. Livney** and R. L. Bradley, Jr., Factors Affecting Flavor of Whey as an Ingredient in Ice Cream and Other Frozen Desserts, *Cultured Dairy Products Journal* 29 (1994) 23-27.
2. **Y. D. Livney**, M. Corredig and D. G. Dalgleish, Influence of thermal processing on the properties of dairy colloids, *Current Opinion In Colloids and Interface Science* 8 (2003) 359-364. (CHEMISTRY, PHYSICAL 16/127) IF=6.141.
3. **Y. D. Livney**, Milk Proteins as Vehicles for Bioactives, **Invited Review: *Current Opinion in Colloids and Surface Science* 15 (2010) 73-83. (CHEMISTRY, PHYSICAL 16/127) IF=6.141** **This paper was ranked 2<sup>nd</sup> in the Top 25 Hottest Articles in Current Opinion in Colloids and Surface Science July to Sept. 2010!**
4. A. Shapira\*, **Y. D. Livney**, H. J. Broxterman and Y. G. Assaraf, Nanomedicine for targeted cancer therapy: towards the overcoming of drug resistance, *Drug Resistance Updates*, 14 (3) (2011), 150-163 (**PHARMACOLOGY & PHARMACY 5/252**) **IF= 10.906 [Cited 212 times by July 2017 ; Most highly cited paper in DRU 2011!]**
5. **(Invited review): Y. D. Livney** and Y. G. Assaraf Rationally designed nanovehicles to overcome cancer chemoresistance, *Adv. Drug Deliv. Rev.* (2013), Nov 30;65(13-14):1716-30. doi: 10.1016/j.addr.2013.08.006. (IF=13.577).
6. **(Editorial): Y. D. Livney**, Ulrich Kulozik & Ronald Gebhardt, Delivery of Functionality in Complex Food Systems: Physically Inspired Approaches from Nanoscale to Microscale: 5th Symposium, Special Issue of Food Biophysics: Volume 9, Issue 4 (2014), Page 301-303.
7. **(Invited review): Y. D. Livney**, Nanostructured delivery systems in food: Latest developments and potential future directions. *Current Opinion in Food Science* 3, (2015) 125-135
8. **(Invited review):** Maya Bar-Zeev\*, **Yoav D. Livney** and Yehuda G. Assaraf: Targeted Nanomedicine for Cancer Therapeutics: Towards Precision Medicine Overcoming Drug Resistance. *Drug Resistance Updates* 31, (2017), 15–30. <https://doi.org/10.1016/j.drug.2017.05.002>. IF 10.906

### Published Book Chapters

1. **(Invited review): Y. D. Livney**, Complexes and conjugates of biopolymers for delivery of bioactive ingredients via food, in: *Delivery and controlled release of Bioactives in foods and nutraceuticals*, N. Garti (Ed.), Woodhead Publishing Ltd. Abington, Cambridge, England 2008.



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3. **(Invited Review): Y. D. Livney**, Biopolymeric amphiphiles and their assemblies as functional food ingredients and nutraceutical delivery systems, in: Encapsulation Technologies and Delivery Systems for Food Ingredients and Nutraceuticals, N. Garti, D.J. McClements (Eds.), Woodhead Publishing Ltd. Abington, Cambridge, England 2012.
4. **(Invited contribution):** Alina Shapira\*, Yehuda G. Assaraf, and **Yoav D. Livney**, Beta-Casein Nanovehicles for Oral Delivery of Chemotherapeutic Drugs, Chapter 28 (pp. 687-712) in: Nanomedicine in Cancer Laos-P-Balogh (Ed.) Pan Stanford Publishing, Singapore 2017. ISBN: 9789814745802. DOI: 10.4032/9781315114361
5. **(Invited Review): Y. D. Livney**, Nanoencapsulation technologies. Chapter 5 (pp143-169) in: Engineering Foods for Bioactives Stability and Delivery, Yrjo Roos & **Yoav D. Livney** (Eds), Food Engineering Series, Gustavo V. Barbosa-Cánovas (Series Ed.), Springer 2017, ISBN 978-1-4939-6593-9.
6. Alina Shapira\*, Yehuda G. Assaraf, and **Yoav D. Livney**, Beta-Casein Nanovehicles for Oral Delivery of Chemotherapeutic Drugs, in Nanomedicine's Most Cited – Volume 1: Nanomedicine in Cancer, Lajos P. Balogh (Ed). PAN Stanford Publishing, Singapore, 2017, ISBN 978-981-4745-80-2 (Hardcover)(ISBN 978-1-315-11436-1 (eBook)
7. **(Invited peer-reviewed book chapter, reporting a new research):** Renata Kisiliak\* and **Yoav D. Livney**, Hydration-mediated effects of saccharide stereochemistry on protein heat stability. In "Stereochemistry and Global Connectivity: The Legacy of Ernest Eliel", *Volume 1*, 171-195, January 1<sup>st</sup> 2017; ACS Books/E-Books, DOI:10.1021/bk-2017-1257.ch009

### Book Editing

1. Engineering of Foods for Stabilization and Delivery of Bioactives Yrjo Roos & **Yoav D. Livney (EDs)**, Food Engineering Series, Gustavo V. Barbosa-Cánovas (Series Ed.), Springer 2017, ISBN 978-1-4939-6593-9. **This book was one of the top 25% most downloaded eBooks in the relevant eBook Collection in 2017!**

### Patents granted

1. **Y. D. Livney**, & D. G. Dalgleish, Casein micelle as a natural nano-capsular vehicle for nutraceuticals. European patent granted (EP2007212 B1). Israeli Patent granted.  
Still pending: (Provisional U.S. patent application 20.4.2006, and PCT 20-4-2007, National patent application 20.10.08).



2. **Y. D. Livney**,  $\beta$ -Lactoglobulin-polysaccharide nanoparticles encapsulating hydrophobic biologically active compounds, US patent No. 8,791,064 was issued on 29.7.14; WO 2009130704 A1.
3. D. Danino, **Y. D. Livney**, O. Ramon<sup>#</sup>, I. Portnaya<sup>#</sup> & U. Cogan, Beta-casein assemblies for enrichment of food and beverages and methods of preparation thereof. Patent number: US 8,865,222 B2
4. **Y. D. Livney** and A. Shpigelman, Denatured lactoglobulin and polyphenol coassemblies. US patent 9,005,664,B2, Apr.14.2015 (priority date 17/10/2010).
5. **Y. D. Livney** Potato protein nanoparticles. TECH-P-019 Issued in Israel (patent #228528) (priority date: Sept 17.2013) (WO 2015040616 A1).
6. **Y. D. Livney** Pectin nanoparticles. TECH-P-018 (priority date: 12.12.2013) Issued in the US Patent # 9,950,003.

### Patents pending

7. **Y. D. Livney**, Yehuda G. Assaraf, Alina Shapira<sup>\*</sup>, Nanoencapsulation of Chemotherapeutic and other Drugs in Beta- Casein Micelles (priority date: 29.2.2008) (currently after PCT application)
8. **Y. D. Livney** Protein-polysaccharide conjugates and use for encapsulating nutraceuticals for clear beverage applications (provisional patent application 61/447773, 1.3.2011; US patent application number 13410001 1.3.2012).
9. **Y.D. Livney** and A. Seifert Composition and method for a prebiotic targeted delivery system US patent application (TECH-P-0124\_USP priority date 10.9.2017)

### Reviewing journals - external referee for:

Journal of the American Chemical Society (JACS), Biomacromolecules, Langmuir, Nanomedicine, advances in Colloid and interface science, Medicinal Research Reviews, Journal of Controlled Release Food Hydrocolloids, Journal of Agricultural and Food Chemistry, Colloids and Surfaces A: Physicochemical and Engineering Aspects, Journal of Polymer Science B: Polymer Physics, Food Research International, Journal of Food Science, Dairy Science & Technology, Food & Function, Food Engineering Reviews, Colloid and Polymer Science, Polymer, Langmuir, Journal of Biomedical Nanotechnology.

**Guest Editor:** Food Biophysics (Springer).

### Editorial Board Member in:

Food Hydrocolloids (Elsevier)

Food Biophysics (Springer)

Precision Nanomedicine (Clinam, Andover House)

Bio-Inspired Nanotechnology (Publishing House of Sciences)

### CONFERENCES

(Speaker name underlined); \* Graduate students supervised by Dr. Livney;

^ Undergraduate students supervised by Dr. Livney; # Research associates in Livney's group)

### Invited/Keynote talks

1. **Y.D. Livney**, I. Portnaya, B. Faupin<sup>^</sup>, O. Ramon, Y. Cohen, U. Cogan, S. Mizrahi, Swelling and Contraction of Nonionic Hydrophilic Polymer Gels in Presence of Low

- Molecular Weight Co-Solutes: An invited talk at *The 37<sup>th</sup> Annual Convention of the Israeli Institute of Chemical Engineers (IChE 2001)*, Haifa, Israel, Apr. 2001
2. **Y. D. Livney**, E. Semo, D. Danino, and, E. Kesselman, Casein micelle as a natural nano-capsular vehicle for nutraceuticals: An invited talk at *The 42<sup>nd</sup> Annual Convention of the Israeli Institute of Chemical Engineers (IChE)*, 2006, Tel-Aviv, Israel.
  3. **Y. D. Livney**, Nanoencapsulation of Nutraceuticals Using Milk Proteins, An Invited talk at the "Food in the New Era 2007" The International Conference of the Israeli Food Industry, June 2007, Tel Aviv, Israel
  4. **Y. D. Livney**, Nature-Inspired Nanodelivery Vehicles for Hydrophobic Bioactives, An Invited talk at *The 73<sup>rd</sup> annual meeting of the ICS (Israel Chemical Society)* The International Convention Center (Binyanei Ha'Uma), Jerusalem, ISRAEL February 4-5, 2008
  5. **Y. D. Livney**, [invited Session Co-Chairman and lecturer] Summary and reflections on food enrichment with vitamin D; IFT Annual Meeting 2009, Anaheim, CA, June 2009
  6. Roy I. Pinhassi\*, Assaraf, Y. G., Drori, S., Farber, S., Ickowicz, D., Domb, A. J., and **Y. D. Livney**, Novel Arabinogalactan-Folate-Drug Conjugate for Targeted Delivery of Anticancer Drugs, *Polymers for Advanced Technologies (PAT) 2009*, Jerusalem, Sep. 2009 (**Key Note Lecture**).
  7. **Y. D. Livney**, Biopolymer-based nanovehicles for delivery of health-promoting compounds, an invited talk at "the third symposium on innovation in food science- industry meets academy", The Robert H. Smith Faculty of Agriculture, Food and Environment, The Hebrew University, Rehovot, Jan 28<sup>th</sup> 2010.
  8. **Y. D. Livney** and Sophia Ish Shalom, Bioavailability of vitamin D in casein micelles, compared to its availability in milkfat. The Second Annual Israeli Dairy-Board Conference, Wahl Conference Center near Bar-Ilan University, March 9<sup>th</sup>, 2011.
  9. **Y. D. Livney**, Maillard reaction-conjugates as vehicles for enrichment of clear beverages with hydrophobic nutraceuticals, an invited talk at the Food in the New Era conference, Tel Aviv, June 20, 2011.
  10. **Y. D. Livney**, Saccharide stereochemistry impact on water structure, and on biopolymer behavior in aqueous systems. The Physics, Chemistry, and Biology of Ions and Osmolytes in Solution, Telluride CO USA, July 10-15, 2011
  11. **Y. D. Livney**, Nature inspired nanodelivery systems for health promoting bioactives, 3<sup>rd</sup> Symposium on The Interface Between Nanotechnology and Biology, CFN Karlsruhe-RBNI Technion-Weizmann Institute of Science, Nov. 27-29, 2011, Weizmann Institute of Science, Rehovot.
  12. **Y. D. Livney**, Controlling nanocrystal size and morphology by co-assembly with amphiphilic proteins. International Conference on material science and Technology (ICMST 2012) on 10-14 June 2012, Kerala, India.
  13. **Y. D. Livney**, The Next Generation in Anti-Cancer Drug Delivery, "Knowledge mining and Bioinformatics Tools to Advance Personalized Diagnostics and Therapeutics", Florence, Italy, Feb. 5<sup>th</sup> 2012.
  14. **Y. D. Livney**, Quadrugnostic nanoparticles for cancer therapy. The 8<sup>th</sup> Annual Meeting of The Israeli Chapter of The Controlled Release Society September 5-7, 2012, Maalot, Israel.
  15. **Y. D. Livney**, Ravit Edelman<sup>^</sup>, Iliya Kusner, Renata Kisiliak<sup>^</sup>, and Simcha Srebnik, Templating effect of sugars on water structure and on protein stability, EuroCarb 17, July 7-11.2013, Tel Aviv, Israel.
  16. **Y. D. Livney**, Quadrugnostic nanoparticles for cancer therapy. The 2<sup>nd</sup> Up close and personalized, July 25-8.2013, Paris, France.

17. **Y. D. Livney**, Biodegradability & target-activated drug release of nano-delivery systems, Workshop on Biodegradable Polymers in Medicine, 9-11 September 2013, Beit Belgia, The Hebrew University of Jerusalem, Israel.
18. **Y.D. Livney**, Ravit Edelman, & Yehuda G Assaraf, Novel Nanomedical Platforms for Overcoming Anticancer Drug Resistance and for Diagnostics, Israel Chemical Society Annual Meeting, February 5<sup>th</sup>, 2014, Dan Panorama Hotel in Tel-Aviv
19. **Y.D. Livney**, Ravit Edelman, & Yehuda G Assaraf, Quadrugnostic Nanoparticles for Overcoming Anticancer Drug Resistance and for Diagnostics, Biomedical Engineering 2014, Congress Center, Haifa, Israel, Feb 27<sup>th</sup> 2014.
20. **Y.D. Livney**, Quadrugnostic nanoparticles for cancer therapy; The Umbrella Symposium, Aachen, Germany, March 23-27, 2014.
21. **Y. D. Livney (Key note)**, Clearly Healthy: Novel Invisible Carriers for Nutraceuticals. The Food Structure and Functionality Forum, March 30<sup>th</sup> - April 2<sup>nd</sup>, 2014 Amsterdam, The Netherlands.
22. **Y. D. Livney**, The transparent challenge: Enriching clear beverages with water-insoluble micronutrients. CEFood Congress 2014, Ohrid, Macedonia, May 21<sup>st</sup> -24<sup>th</sup> 2014.
23. **Y.D. Livney**, Clearly Healthy: Novel Invisible Carriers for Nutraceuticals. Innovation Forum, Faculty of Agriculture, Hebrew University of Jerusalem, May 29. 2014, Rehovot, Israel.
24. **Y.D. Livney** Clearly Healthy: Novel Natural Invisible Carriers for Nutraceuticals. Innovation in the Food Area- Tel-Hai symposium, 10.6.14, Tel-Hai, Israel.
25. **Y.D. Livney**, Ravit Edelman, & Yehuda G Assaraf, "Novel Quadrugnostic Nanoparticles for Overcoming Anticancer Drug Resistance and for Diagnostics" International Society of Biomedical Polymers & Polymeric Biomaterials' (ISBPPB) Annual Conference, July 9-12, 2014, Washington, D.C., USA.
26. **Y.D. Livney**, Stability and bioavailability of hydrophobic nutraceuticals delivered within milk protein-based nanovehicles, International Dairy Federation, World Dairy Summit, October 27 to October 31, 2014 Tel Aviv. [Conference cancelled due to the Gaza War].
27. **Y.D. Livney**, Ravit Edelman, & Yehuda G Assaraf, "Quadrugnostic Nanoparticles for Overcoming Anticancer Drug Resistance and for Diagnostics" Aarhus University, Denmark, 15-16.9.2014.
28. **Y.D. Livney**, Casein micelles and other protein assemblies as protective matrices for bioactive components. Food Bioprocessing: New functionalities through production, concentration and stabilization of biologically active components- Technology Seminar, Technical University of Munich, Freising-Weihenstephan, 17-19.9.2014.
29. **Y.D. Livney**, Ravit Edelman, & Yehuda G Assaraf, "Novel Quadrugnostic Nanoparticles for Overcoming Anticancer Drug Resistance and for Diagnostics" 9th Intl' Conference of Anticancer Research, Porto Carras, Sithonia, Halkidiki, Greece 6-10 Oct 2014.
30. **Y.D. Livney**, Invisible health promoters, Future Food Horizons Conference, NowFood Centre, University of Chester, Chester, UK 6-7.11.2014
31. **Y.D. Livney**, Maya Bar Ze'ev & Yehuda G. Assaraf,  $\beta$ -Casein Nano-vehicles for Oral Delivery of Chemotherapeutic Combinations to Overcome Multidrug Resistance in Gastric Cancer, Annual conference of the Israeli Society of Physiology & Pharmacology, Ma'ale Hachamisha, Feb. 19, 2015 (session cancelled a day before due to snow).

32. **Y.D. Livney**, Nutrient Delivery Systems: Fortified food against dietary deficiencies. F2F workshop on “Diversified Adaptable Food”, May 6-8th 2015, Rome, Italy.
33. **Y.D. Livney**, Biopolymer-based nano-delivery systems for nutraceuticals in food and beverages. “Volcanano”: Workshop on nanoparticles in agriculture, food and the environment. June 1<sup>st</sup> 2015, Volcani Research Center, ARO, Bet-Dagan, Israel.
34. **Y.D. Livney**, Clearly Healthy: Novel Natural Invisible Carriers for Nutraceuticals. “Euro Global Summit and Expo on Food & Beverages” June 16-18, 2015, Alicante, Spain.
35. **Y.D. Livney**, Biopolymeric Nanovehicles for Nutraceuticals, for Higher Durability and Bioavailability, 3rd International Food Structures, Digestion and Health Conference, Wellington, New Zealand, Oct 28-30, 2015.
36. R. Edelman, I. Kusner, R. Kisiliak, S. Srebnik, and **Y.D. Livney** (Keynote speaker), Sugar Stereochemistry Effects on Water Structure and on Protein Stability: The Templating Concept. International Symposium of the Properties of Water (Isopow 13) June 26-29, 2016, Lausanne, Switzerland.
37. R. Edelman, I. Kusner, R. Kisiliak, S. Srebnik, and **Y.D. Livney**, Sugar Stereochemistry Effects on Water Structure and on Protein Stability: The Templating Concept. [Stereochemistry, August 18-19, 2016 Sao Paulo, Ibirapuera, Brazil \(Virtual oral presentation\)](#).
38. Gal Israeli – Lev, Marina Pitchkhadze, Sahar Nevo, Lulu Fahoum, Esther Meyron- Holtz and **Yoav D. Livney**, Harnessing proteins to control crystal size and morphology, for improved delivery performance of hydrophobic bioactives, using genistein as a model, [3rd World Congress and Expo on Nanotechnology \(Nanotek-2016\) Singapore, November 07-09, 2016](#).
39. **Yoav D. Livney**, R. Edelman, Y. G. Assaraf, “Quadrugnostic” Nanoparticles for Overcoming Anticancer Drug Resistance and for diagnostics” [3rd World Congress and Expo on Nanotechnology \(Nanotek-2016\) Singapore, November 07-09, 2016](#).
40. **Yoav D. Livney**, R. Edelman, Y. G. Assaraf, “Quadrugnostic” Nanoparticles for Overcoming Anticancer Drug Resistance and for diagnostics” International Conference on Emerging Trends in Nanomaterials Science & Technology (ICETNMT – 2017), NIT Nagaland, Chumukedima, Dimapur, Nagaland, India, Jan 4-6 2017.
41. **Yoav D. Livney**, R. Edelman, Y. G. Assaraf, “Quadrugnostic” Nanoparticles for Overcoming Anticancer Drug Resistance and for diagnostics” International Conference and Exhibition on Nanomedicine and Drug Delivery May 29-31, 2017 Osaka, Japan
42. Maya Bar-Zeev, Yehuda G Assaraf & **Yoav D. Livney**,  $\beta$ -casein nanovehicles for oral delivery of chemotherapeutic Drug combinations overcoming P-glycoprotein-mediated multidrug resistance in human gastric cancer cells, International Conference and Exhibition on Nanomedicine and Drug Delivery May 29-31, 2017 Osaka, Japan.
43. Adi Seifert, Shay Freilich, Yechezkel Kashi & **Yoav D. Livney (Keynote Speaker)**, Vehicles for Targeted Delivery to Probiotics in the Human Gut Microbiome, [Delivery of Functionality in Complex Food Systems VII, Auckland, NZ. November 2017](#)
44. **Yoav D. Livney, (Keynote Speaker)**, Meital Kazir, Yarden Abuhassira, Arthur Robin, Omri Nahor, Alvaro Israel, & Alexander Golberg, Proteins derived from macroalgae for food application, Biopolymers 2017, Nantes, France, Nov 28-Dec 1<sup>st</sup> 2017.

45. **Yoav D. Livney, (Invited speaker)** Ravit Edelman, Iliya Kusner, Renata Kisiliak, & Simcha Srebnik. Sugar stereochemistry effects on water structure and on protein stability: The templating concept. 255th ACS National Meeting & Exposition; Water in Foods Symposium in honor of Louise Slade & Harry Levine, New Orleans March 18-20 2018.
46. **Adi Seifert, Shay Freilich, Yechezkel Kashi & Yoav D. Livney, Keynote lecture**, Novel Vehicles for Targeted Delivery to Gut Probiotics, 17th Food Colloids Conference at University of Leeds in April 8-11th 2018 UK. \
47. **Yoav D. Livney (Keynote Speaker)**, (Nature-inspired protein nanotechnology for delivery of nutraceuticals and anti-cancer drugs), 2018 AOCs Annual Meeting & Expo in Minneapolis on May 6-9.
48. **Yoav D. Livney (Selected to be Speaker & Discussion leader)** for the Meeting: Nanoscale Science and Engineering for Agriculture and Food Systems Gordon Research Conference, June 03-08, 2018 Mount Holyoke College in South Hadley, MA United States.

### Refereed Papers in Conference Proceedings

1. **Y. D. Livney**, E. Semo\*, D. Danino and E. Kesselman, Nanoencapsulation of Hydrophobic Nutraceutical Substances within Casein Micelles, XIV<sup>th</sup> International Workshop on Bioencapsulation, Lausanne, Switzerland, Oct. 6-7, 2006.  
[http://impascience.eu/bioencapsulation/340\\_contribution\\_texts/2006-10-05\\_07-4.pdf](http://impascience.eu/bioencapsulation/340_contribution_texts/2006-10-05_07-4.pdf)
2. **Y. D. Livney** and N. Ron\*, Beta-Lactoglobulin ( $\beta$ -Lg) - Polysaccharide Complexes as Nanovehicles for Hydrophobic Nutraceuticals, XV<sup>th</sup> International Workshop on Bioencapsulation, Vienna, Austria, Sept 6-8, 2007,  
[http://impascience.eu/bioencapsulation/340\\_contribution\\_texts/2007-09-06\\_03-4.pdf?PHPSESSID=9526cfb320dcf887707f5591530539a4](http://impascience.eu/bioencapsulation/340_contribution_texts/2007-09-06_03-4.pdf?PHPSESSID=9526cfb320dcf887707f5591530539a4)
3. **Y. D. Livney**, A. Shapira\* and Y. G. Assaraf, Beta- casein micelles as nano-delivery vehicles for chemotherapeutic drugs, XVI<sup>th</sup> International Workshop on Bioencapsulation, Dublin, Ireland, Sept. 4-6, 2008  
<http://bioencapsulation.net/index3.html>
4. **Y. D. Livney**; R. Edelman; I. Kusner; R. Kisiliak; S. Srebnik, Water-structure effect of sugar stereochemistry, and its impact on protein thermal stability, Frontiers in Water Biophysics, Trieste, Italy, May 23-26; 2010.  
<http://waterbiophysics.eu/en/upload/2012/Book%20TRIESTE%20WATER%20FINAL%20WEB.pdf>
5. G. Markman\* and **Y. D. Livney**, Maillard-reaction based nano-capsules for protection of water-insoluble nutraceuticals in clear drinks. International Congress on Engineering and Food (ICEF11), Athens, Greece, May 22-26.2011,  
<http://www.icef11.org/content/papers/fpe/FPE467.pdf>
6. Alina Shapira\*, Irit Davidson<sup>^</sup>, Noa Oron<sup>^</sup>, Prof. Yehuda Assaraf, and **Dr. Yoav Y. D. Livney**, Beta casein nanovehicles for targeted oral drug delivery – towards treatment of gastric cancer, World Journal of Engineering, Vol. 8, Suppl. 1, 2011, ICCE-19 Shanghai, China.  
[http://wjoe.hebeu.edu.cn/sup.3.2010/S/S1/Shapira,%20Alina%20\(Technion,%20OISrael%20Inst.Tech.\)%201005.pdf](http://wjoe.hebeu.edu.cn/sup.3.2010/S/S1/Shapira,%20Alina%20(Technion,%20OISrael%20Inst.Tech.)%201005.pdf)

### Contributed talks (presenter underlined)

1. **Y. D. Livney**, O. Ramon, E. Kesselman, U. Cogan, S. Mizrahi, and Y. Cohen, Swelling and Contraction of Nonionic Hydrophilic Polymer Gels in Presence of Low

- Molecular Weight Co-Solutes: *The Int'l Symposium on the Properties of Water (ISOPOW 2000)*, Zichron-Yaacov, Israel Sept. 2000
2. **Y. D. Livney**, O. Ramon, E. Kesselman, U. Cogan, S. Mizrahi, and Y. Cohen, Swelling and Contraction of Nonionic Hydrophilic Polymer Gels in Presence of Low Molecular Weight Co-Solutes: *Food in the New Era Conference*, Tel-Aviv, Oct. 2001
  3. **Y. D. Livney**, I. Portnaya, B. Faupin<sup>^</sup>, O. Ramon, Y. Cohen, U. Cogan, S. Mizrahi, Preferential Interactions between Nonionic Hydrophilic Polymers and Inorganic Salts: Effects on Gel Swelling, Osmotic Pressure and Intrinsic Viscosity of Polyacrylamide: *The 38<sup>th</sup> Annual Convention of the Israeli Institute of Chemical Engineers (IChE 2002)*, Tel-Aviv, Apr. 2002
  4. **Y. D. Livney**, I. Portnaya, B. Faupin<sup>^</sup>, O. Ramon, Y. Cohen, U. Cogan, S. Mizrahi, Interactions between Nonionic Hydrophilic Polymers and Salts: Effects on Gel Swelling and Osmotic Pressure of the Polymer: *The Europolymer Conference (EUPOC 2002)*, Gargnano, Italy, June 2002.
  5. **Y. D. Livney**, and D.G. Dalgleish, Specificity of Disulfide Bond Formation during Thermal Aggregation in Solutions of  $\beta$ -Lactoglobulin and  $\kappa$ -casein. *The annual IFT meeting*, Las-Vegas, Nevada USA, July 2004.
  6. S. Sandra, **Y. D. Livney**, and D.G. Dalgleish, Effects of ultra high pressure homogenization and heating on structural properties of casein micelles in reconstituted skim milk powder. *The annual IFT meeting*, Las-Vegas, Nevada USA, July 2004.
  7. **Y. D. Livney**, I. Portnaya, B. Faupin<sup>^</sup>, L. Fahoum<sup>^</sup>, O. Ramon, Y. Cohen, S. Mizrahi, and U. Cogan, Interactions of Glucose and Polyacrylamide in Solutions and Gels. *The Polymer Networks Conference*, Bethesda, MD, USA, August 2004.
  8. **Y. D. Livney**, E. Semo\*, D. Danino, and, E. Kesselman, Casein micelle as a natural nano-capsular vehicle for nutraceuticals. *Bioencapsulation Research Group Workshop*, October 5-7, 2006, Lausanne, Switzerland.
  9. **Y. D. Livney**, E. Semo\*, D. Danino, and, E. Kesselman, Casein micelle as a natural nano-capsular vehicle for nutraceuticals. *Israel-Netherlands Meeting*, November 20-21, 2006, Wageningen, the Netherlands.
  10. **Y. D. Livney**, N. Ron\*, Beta-Lactoglobulin ( $\beta$ -Lg) - Polysaccharide Complexes as Nanovehicles for Hydrophobic Nutraceuticals, *Bioencapsulation Research Group*, Vienna, Sep. 5-8<sup>th</sup> 2007.
  11. **Y. D. Livney**, D. Knoh<sup>^</sup>, Nanoencapsulation of Hydrophobic Nutraceuticals within Self-Reassembled Casein Micelles, Reformed during Ultra-High-Pressure-Homogenization. *2<sup>nd</sup> International Symposium- Delivery of Functionality in Complex Food Systems: Physically-Inspired Approaches From Nanoscale To Microscale*. university of Massachusetts, Amherst, Massachusetts, USA, October 8<sup>th</sup> to 10<sup>th</sup>, 2007
  12. A. Shpigelman\*, I. Portnaya<sup>#</sup>, I. Kusner<sup>#</sup>, O. Ramon<sup>#</sup>, & **Y. D. Livney**, Saccharide-Structure Effect on Protein Behavior in Aqueous Media, Using PNIPA as a Model for Protein; *UKPCF2007 International Conference on Polymer Colloids*, Warwick University, Warwick UK, Sept. 2007
  13. P. Zimet\*, I. Portnaya<sup>#</sup>, and **Y. D. Livney**,  $\beta$ -lactoglobulin as a Nano-Vehicle for Omega-3 Polyunsaturated Fatty Acids, *Food Colloids 2008*, April 2008, Le Mans, France
  14. A. Shapira\*, G. Markman<sup>^</sup>, Y. G. Assaraf and **Y. D. Livney**, Beta-Casein Micelles as Nano-Delivery Vehicles for Chemotherapeutic Drugs, *Polymer Colloids 2008*, Prague, Czech Republic, 20-24 July 2008.

15. **Y. D. Livney**, Nature-Inspired Milk-Protein Based Nano-Vehicles for Nutraceuticals *The 17th International Symposium on Surfactants in Solution (SIS)*, Berlin convention center (BCC), Berlin, Germany, August 17-22, 2008
16. A. Shpigelman\*, I. Portnaya#, I. Kusner#, O. Ramon# & **Y. D. Livney**, Saccharide-Structure Effect on PNIPA Behavior in Aqueous Media, *19th Polymer Networks Group Meeting in Cyprus*, 22-26 June 2008
17. A. Shapira\*, Y. G. Assaraf and **Y. D. Livney**, Beta-casein micelles as nano-delivery vehicles for chemotherapeutic drugs, *RBNI Fall symposium*, Hagoshrim, Dec. 2008.
18. S. Srebnik, R. Matza\*, I. Kusner#, & **Y. D. Livney**, Water Structuring Effect of Sugars, *American Physical Society (APS) MARCH Meeting-Pittsburg*, Pennsylvania, USA. 2009.
19. A. Shapira\*, D. Epstein^, Y. G. Assaraf, and **Y. D. Livney**, Beta-casein micelles as oral nano-delivery vehicles for chemotherapeutic drugs, *Polymers for Advanced Technologies (PAT) 2009*, Jerusalem, Sep. 2009.
20. A. Shpigelman\*, G. Israeli\*, and **Y. D. Livney**, Heat-Induced Beta Lactoglobulin-Based Nanoparticles as Novel Protective Carriers for EGCG in Clear Beverage; *Delivery of Functionality in Complex Food Systems*, Wageningen, The Netherlands, Oct, 2009.
21. **Y. D. Livney**, Milk Proteins as vehicles for bioactives, *Food Colloids 2010*, Granada Spain, March 2010.
22. **Y. D. Livney**, milk-proteins as nanovehicles for health-promoting compounds. *Nanotechnologies for food and consumer products*, Chester, UK, March 2010.
23. **Y. D. Livney**, R. Edelman\*, I. Kusner#, R. Kisiliak\* and S. Srebnik, Water-structure effect of sugar stereochemistry, and its impact on protein thermal stability, *Frontiers in Water Biophysics*, Trieste, Italy, May 23-26<sup>th</sup> 2010.
24. A. Shpigelman\*, G. Israeli^ and **Y. D. Livney**, Heat-Induced  $\beta$ -Lactoglobulin-Based Nanoparticles as Novel Protective Carriers for EGCG in Clear Beverages, The 4<sup>th</sup> European Workshop on Food Engineering and Technology, Presentations of selected national PhD students in food engineering and technology at European level, Belgrade, May 27– 28<sup>th</sup>, 2010
25. T. S. Demina, T. A. Akopova, A. N. Shchegolikhin, A. O. Chernyshenko, **Y. D. Livney**, E. A. Markvicheva, A. N. Zelenetskii, A. N. Ozerin, Nanostructured amphiphilic materials based on chitosan: solid-state synthesis and characterization, Proc. 1-st Russian – Hellenic Symposium on Polymeric Biomaterials and Bionanomaterials: Recent Advances Safety and Toxicology Issues, 02-09 may 2010, Heraklion, Crete, Greece, 48-49.
26. T.A. Akopova, E.A. Markvicheva, A.N. Zelenetskii, A.N. Ozerin, L.V. Vladimirov, **Y.D. Livney**. Solid State Reactive Blending - a Promising Way to Biomedical Polymer Materials, Proc. III International Conference Fundamental Bases of Mechanochemical Technologies (FBMT-2009), May 2009, Novosibirsk, Russia, 80.
27. M. Haham, M. Kustanovich, S. Ish-Shalom & **Y. D. Livney**, Stability and Bioavailability of Vitamin D Nanoencapsulated in Casein Micelles, Food in the new Era, Tel Aviv, June 2010
28. A. Shpigelman\*, G. Israeli^, Yifat Cohen^ and **Y. D. Livney**, Heat-Induced  $\beta$ -Lactoglobulin-Based Nanoparticles as Novel Protective Carriers for EGCG in Clear Beverages, Food in the new Era, Tel Aviv, June 2010
29. A. Shapira\*, I. Davidson^, Y. G. Assaraf and **Y. D. Livney**, Beta-Casein Micelles as Oral Nano-Vehicles for Chemotherapeutic Drugs, The 7<sup>th</sup> annual meeting of the Israeli Chapter of the Controlled Release Society, Haifa, October 2010



30. **Y. D. Livney** and G. Markman, Maillard-reaction based nano-capsules for protection of water-insoluble nutraceuticals in clear drinks, International Congress on Engineering and Food (ICEF11), Athens, Greece, May 22-26.2011
31. A. Shapira\*, I. Davidson<sup>^</sup>, N. Oron<sup>^</sup>, Y. G. Assaraf and **Y. D. Livney** Milk protein-based Nanovehicles for Oral delivery and targeted release of Chemotherapeutic Drugs, BioMed Israel, Tel-Aviv, May 23-25.2011
32. **Y. D. Livney** and G. Markman, Maillard-conjugation based core-shell co-assemblies for nanoencapsulation of hydrophobic nutraceuticals in clear beverages, "Delivery of Functionality in Complex Food Systems", Guelph, Ontario, Canada, Aug 21-24.2011
33. Gal Israeli and **Yoav D. Livney**. Formation and Entrapment of Hydrophobic Bioactive Nano- Shells: Novel Vehicles for Nutraceutical Delivery. The first meeting of ISBE (Israeli Society for Biotechnology Engineering). December 25, 2011, Ramat-Gan, Israel.
34. A. Shapira\*, I. Davidson<sup>^</sup>, N. Oron<sup>^</sup>, Y. G. Assaraf and **Y. D. Livney**, Beta Casein Nanovehicles for Targeted Oral Drug Delivery – Towards Treatment of Gastric Cancer, 1<sup>st</sup> meeting of the Israeli Society of Biotechnology Engineering, Dec 25<sup>th</sup>. 2011 Ramat Gan, Israel.
35. A. Shapira\*, I. Davidson<sup>^</sup>, N. Oron<sup>^</sup>, Y. G. Assaraf and **Y. D. Livney**, Beta Casein Nanovehicles for Targeted Oral Drug Delivery – Towards Chemo-treatment of Gastric Cancer, Up Close and Personal (UPCP), Feb 2-5, 2012 Florence, Italy.
36. Gal Israeli and **Yoav D. Livney**. Self-assembly and Co-assembly of Hydrophobins with Hydrophobic Nutraceuticals in Aqueous Solutions: Towards Application as Delivery Systems. São Paulo School of Advanced Science on Advances in Molecular Structuring of Food Materials. April 1-5, 2013, Pirasununga, Brazil.
37. Michal Haham\*, Sophia Ish-Shalom, Marina Nodelman, Irit Duek, Elena Segal, Marina Kustanovich and **Yoav D. Livney**, stability and bioavailability of vitamin D nanoencapsulated in casein micelles, 6th Central European Congress on Food, Novi Sad Serbia, May 23-26, 2012.
38. G. Israeli-Lev\* and **Y. D. Livney**, Self-assembly of Hydrophobin and its Co-assembly with Hydrophobic Nutraceuticals in Aqueous Solutions: Towards Application as Delivery Systems. Delivery of Functionality in Complex food Systems 2013", Haifa, Israel, Sept 29<sup>th</sup>-Oct 3<sup>rd</sup> 2013
39. Yoni Levinson, Sophia Ish-Shalom, Marina Hefetz & **Yoav D. Livney** Bioavailability of vitamin D<sub>3</sub>-loaded re-assembled casein micelles in fat-free yogurt. Delivery of Functionality in Complex food Systems 2013", Haifa, Israel, Sept 29<sup>th</sup>-Oct 3<sup>rd</sup> 2013
40. Yifat Cohen , Sophia Ish-Shalom, Uri Lesmes, Elena Segal and **Yoav D. Livney**, Bioaccessibility and Bioavailability of Hydrophobic Nutraceuticals Encapsulated in Milk Protein Nanoparticles, Delivery of Functionality in Complex food Systems 2013", Haifa, Israel, Sept 29<sup>th</sup>-Oct 3<sup>rd</sup> 2013.
41. Gal Israeli-Lev and **Yoav D. Livney**. Hydrophobins: Novel Nanovehicles of Hydrophobic Nutraceuticals for Food and Clear Beverages Enrichment. Food in the New Era, the 13th International Conference of the Israeli Food Industry. June 16-17, 2014, Kfar-Hamacabia, Israel.
42. Shlomit David and **Yoav D. Livney**, Potato Protein Based Nanovehicles for Health Promoting Hydrophobic Bioactives in Clear Beverages, 16th Food Colloids Conference, April 10-13, 2016, Wageningen, The Netherlands.
43. In vitro and in vivo evaluation of bioaccessibility and bioavailability of vitamin d3 encapsulated within re-assembled casein micelles, Y. Cohen, S. Ish-



**Poster presentations (presenter underlined)**

1. **Y.D. Livney**, O. Ramon, E. Kesselman, U. Cogan, S. Mizrahi, and Y. Cohen, Swelling and Contraction of Nonionic Hydrophilic Polymer Gels in Presence of Low Molecular Weight Co-Solutes: *the Int'l Symposium on the Properties of Water (ISOPOW 2000)*, Zichron-Yaacov, Israel Sept. 2000
2. **Y.D. Livney**, and D.G. Dalgleish, Tertiary Structure Study of  $\beta$ -Casein by Specific Intramolecular Cross-Linking and Mass Spectrometry. *Food Colloids 2004 conference*, Harrogate, United Kingdom, April 2004.
3. **Y.D. Livney**, and D.G. Dalgleish, The use of specific crosslinking agents to study molecular conformations in food proteins. *The 7th International Hydrocolloids Conference* Aug. 29 – Sept. 1st 2004, Melbourne, Australia.
4. E. Semo\*, E. Kesselman, D. Danino and **Y. D. Livney**, Casein micelle as a natural nano-capsular vehicle for nutraceuticals, *Food Colloids 2006*, April 23-26 2006, Montreaux, Switzerland
5. Nadav Ron\* & **Yoav D. Livney**,  $\beta$ -Lg-Polysaccharide Complexes as Nanovehicles for Hydrophobic Nutraceuticals, *Bioencapsulation Research Group Conference*, Lisbon, Portugal, April 26-28, 2007.
6. Dina Knoh^ & **Yoav D. Livney**, Nanoencapsulation of Nutraceuticals within Self-Reassembled Casein Micelles, Using a New Ultra-High-Pressure-Homogenization Process, *World Dairy Summit*, Dublin, Ireland 29.9-4.10.07
7. Nadav Ron\* & **Yoav D. Livney**,  $\beta$ -Lg-Polysaccharide Complexes as Nanovehicles for Hydrophobic Nutraceuticals, *World Dairy Summit, Dublin*, Ireland 29.9-4.10.07.
8. Patricia Zimet\* , Irina Portnaya#, Nadav Ron\* & **Yoav Livney**,  $\beta$ -Lactoglobulin as a Nano-vehicle for Omega-3 Fatty Acids, *Innova*, Montevideo, Uruguay, Oct, 2007.
9. A. Shapira\* and Y. G. Assaraf and **Y. D. Livney**, Beta- Casein micelles as nano-delivery vehicles for chemotherapeutic drugs, *RBNI Winter School*, Dead Sea, Feb. 2008
10. R. I. Pinhassi\*, D. Ickowicz, S. Farber, A. J. Domb, Y. G. Assaraf and **Y. D. Livney**, Arabinogalactan as a Targeted Nano-Vehicle for Anticancer Therapeutics, *RBNI Winter School*, Dead Sea, Feb. 2008
11. P. Zimet\* and **Y. D. Livney**,  $\beta$ -Lactoglobulin/Pectin Electrostatic Complexes as Nano-vehicles for Omega-3 Fatty Acids, *RBNI Winter School*, Dead Sea, Feb. 2008
12. **Y. D. Livney**, A. Shapira\* and Y. G. Assaraf, Beta- Casein micelles as nano-delivery vehicles for chemotherapeutic drugs, *XVI<sup>th</sup> International Conference on Bioencapsulation*, Dublin, Ireland. Sept 4-8, 2008
13. P. Zimet\* and **Y. D. Livney**,  $\beta$ -Lactoglobulin and its Nano-Complexes with Pectin as Vehicles for  $\omega$ -3 Polyunsaturated Fatty Acids, *RBNI Fall symposium*, Hagoshrim, Dec. 2008
14. A. Shapira\* and Y. G. Assaraf and **Y. D. Livney**, Beta-Casein Micelles as Oral Nano-Delivery Vehicles for Chemotherapeutic Drugs, *Nano-Israel 2009*, March 30-31, 2009, Jerusalem.
15. J. Bargarum^, D. Danino, and **Y. D. Livney**, Nanoencapsulation of Vitamin D in Beta Casein Micelles; *IFT Annual Meeting 2009*, Anaheim, CA, June 2009.
16. A. Shapira\*, I. Davidson^, Y. G. Assaraf and **Y. D. Livney**,  $\beta$ -Casein - Taxol Nanoparticles for Oral Delivery for Gastric Carcinoma: Stability and Target-Activated Release, *RBNI Winter School, Ein Gedi*, Feb. 2010.

17. A. Shpigelman\*, G. Israeli<sup>^</sup> and **Y. D. Livney**, Heat-Induced  $\beta$ -Lactoglobulin-Based Nanoparticles as Novel Protective Carriers for EGCG in Clear Beverages, *RBNI Winter School, Ein Gedi*, Feb. 2010.
18. A. Shapira\*, I. Davidson<sup>^</sup>, Y. G. Assaraf and **Y. D. Livney**, Beta-Casein Micelles as Oral Nano-Vehicles for Chemotherapeutic Drugs, The 7th annual meeting of the Israeli Chapter of the Controlled Release Society, Haifa, October 2010 (Poster selected as one of ~10% of the posters for oral presentation too).
19. N. Kuszpet<sup>^</sup>, A. Shpigelman\*, R. Edelman<sup>^</sup>, O. Ramon# and **Y. D. Livney**, Hydration-mediated effects of saccharide stereochemistry on PNIPA gel swelling, Polymer Networks Group 20th Conference, Aug 29th-Sept 2nd 2010 Goslar Germany.
20. M. Haham\*, M. Kustanovich, S. Ish-Shalom & **Y. D. Livney**, Stability and Bioavailability of Vitamin D Nanoencapsulated in Casein Micelles, The 7th NIZO Dairy Conference, Papendal, The Netherland, Sept. 20-22, 2011.
21. A. Shpigelman\*, G. Israeli<sup>^</sup>, Yifat Cohen<sup>^</sup> and **Y. D. Livney**, Heat-Induced  $\beta$ -Lactoglobulin-Based Nanoparticles as Novel Protective Carriers for EGCG in Clear Beverages, 1st meeting of the Israeli Society of Biotechnology Engineering, Dec 25th. 2011 Ramat Gan, Israel.
22. Gal Israeli\* & **Yoav D. Livney**, Formation and Entrapment of Hydrophobic Bioactive Nanocrystals within Hydrophobin Nano-Shells: Novel Vehicles for Nutraceutical Delivery, 1st meeting of the Israeli Society of Biotechnology Engineering, Dec 25th. 2011 Ramat Gan, Israel.
23. Yedidya Zagury<sup>^</sup>, Jane Levinson#, Sahar Halabi<sup>^</sup> and **Yoav D. Livney**, Encapsulation of Conjugated Linoleic Acid by Maillard-Reaction-Based Protein - Oligo-Saccharide Conjugates for Delivery in Clear Beverages, 1st meeting of the Israeli Society of Biotechnology Engineering, Dec 25th. 2011 Ramat Gan, Israel.
24. Hyaluronic acid based quadrugnostic nanoparticle for cancer therapy, Ravit Edelman, Yehuda G. Assaraf, Inna Levitzky<sup>^</sup>, and **Yoav D. Livney**, The 8th Annual Meeting of The Israeli Chapter of The Controlled Release Society September 5-7, 2012, Maalot, Israel.
25. Hyaluronic-Acid Based Quadrugnostic Nanoparticles for Cancer Therapy, Ravit Edelman, Yehuda G. Assaraf, Inna Levitzky<sup>^</sup>, and **Yoav D. Livney**, Eurocarb 17, July 7-11. 2013, Tel Aviv, Israel.
26. Yanai Shoham, Avi Shpigelman & **Yoav D. Livney**, Suppression of crystallization by  $\beta$ -lg, for delivery of hydrophobic bioactives: the case of naringenin. Delivery of Functionality in Complex food Systems 2013", Haifa, Israel, Sept 29th-Oct 3rd 2013.
27. Yonatan Levinson & **Y. D. Livney**, Soybean  $\beta$ -conglycinin binds vitamin D<sub>3</sub> and protects it against degradation. Delivery of Functionality in Complex food Systems 2013", Haifa, Israel, Sept 29th-Oct 3rd 2013.
28. Ofer Setter & **Y. D. Livney**, Sugar stereochemistry effect on self-assembly of an amphiphilic protein. Delivery of Functionality in Complex food Systems 2013", Haifa, Israel, Sept 29th-Oct 3rd 2013.
29. Gal Israeli-Lev, Marina Pitchkhadze, **Yoav D. Livney**, Applying proteins to control nanocrystal size and morphology of hydrophobic bioactives, using genistein as a model. Delivery of Functionality in Complex food Systems 2013", Haifa, Israel, Sept 29th-Oct 3rd 2013.
30. Maya Bar-Zeev, Yehuda G. Assaraf, **Yoav D. Livney**, Beta-casein nanoparticles for oral delivery of hydrophobic compound combinations. Delivery of Functionality in Complex food Systems 2013", Haifa, Israel, Sept 29th-Oct 3rd 2013.

31. Yedidya Zagury, Shlomit David, **Yoav D. Livney**, Nanocomplexes of curcumin and soy  $\beta$ -conglycinin for enrichment of clear beverages. Delivery of Functionality in Complex food Systems 2013", Haifa, Israel, Sept 29<sup>th</sup>-Oct 3<sup>rd</sup> 2013.
32. Gal Israeli-Lev, Marina Pitchkhadze and **Yoav D. Livney**. Applying Proteins to Control Nanocrystal Size and Morphology of Hydrophobic Bioactives, Using Genistein as a Model. The 2nd Conference of the Israel Society for Biotechnology Engineering (ISBE), December 1, 2013, Tel-Aviv, Israel.
33. Maya Bar-Zeev, Yehuda G. Assaraf and **Yoav D. Livney**, beta-casein based nano-vehicles for oral delivery of chemotherapeutic combinations overcoming p-glycoprotein-mediated multidrug resistance in gastric cancer cells, The 3<sup>rd</sup> Conference of the Israel Society for Biotechnology Engineering (ISBE), December 13, 2015, Tel-Aviv, Israel.
34. Shlomit David and **Yoav D. Livney**, Potato protein based nanovehicles for health promoting hydrophobic bioactives, The 3<sup>rd</sup> Conference of the Israel Society for Biotechnology Engineering (ISBE), December 13, 2015, Tel-Aviv, Israel.
35. Yedidya Zagury and **Yoav D. Livney**, The bioaccessibility and bioavailability of EGCG in complexes with  $\beta$ -lactoglobulin, The 3<sup>rd</sup> Conference of the Israel Society for Biotechnology Engineering (ISBE), December 13, 2015, Tel-Aviv, Israel.
36. Yifat Cohen, Sophia Ish-Shalom, Moran Levi, Uri Lesmes, Elena Segal, and **Yoav D. Livney**, Bioaccessibility and Bioavailability of Hydrophobic Nutraceuticals Encapsulated within Milk Proteins. The 29th EFFoST International Conference, 10-12 November 2015, Athens, Greece.
37. Yifat Cohen, Sophia Ish-Shalom, Moran Levi, Uri Lesmes, Elena Segal, and **Yoav D. Livney**, *In vitro* and *in vivo* evaluation of bioaccessibility and bioavailability of vitamin D3 encapsulated within re-assembled casein micelles, The 3<sup>rd</sup> Conference of the Israel Society for Biotechnology Engineering (ISBE), December 13, 2015, Tel-Aviv, Israel.
38. Gal Israeli – Lev, Marina Pitchkhadze, Sahar Nevo, Lulu Fahoum, Esther Meyron- Holtz, and **Yoav D. Livney**. Harnessing proteins to control crystal size and morphology, for improved delivery performance of hydrophobic bioactives, using genistein as a model. 16<sup>th</sup> Food Colloids Conference, April 10-13, 2016, Wageningen, The Netherlands.
39. Maya Bar-Zeev, Yehuda G. Assaraf and **Yoav D. Livney**,  $\beta$ -Casein Based Nanovehicles for Oral Delivery of Chemotherapeutic Combinations to Overcome Multidrug Resistance in Gastric Cancer, Regenerative Nano-Medicine: From Advanced Delivery Systems to Electronic-Based Devices, June 19-23 , 2016, Tel-Aviv University, Israel
40. Novel Targeted Anticancer Drug Delivery System Based on Aptamer-Decorated Polymeric Nanovehicles. Shira Engelberg, Julia Modrejewski, Yehuda G. Assaraf, Johanna G. Walter and **Yoav D. Livney**. Scientific Cooperation between Israel and Lower Saxony-Spring Meeting March 6 2017, Leibnizhaus, Hannover Germany
41. Meital Kazir, Yarden Abuhassira, Arthur Robin, Omri Nahor, Alvaro Israel, Alexander Golberg, **Yoav D. Livney\***. Purification and functional characterization of proteins extracted from marine macroalgae Ulva and Gracilaria. Biopolymers 2017, Nov 28-Dec 1<sup>st</sup> 2017, Nantes, France.
42. M. Kazir, Y. Abuhassira, A. Robin, O. Nahor, A. Israel, A. Golberg and **Y. D. Livney**, Characterization of Biopolymeric Compounds Extracted from Macroalgae, The 4th conference of the Israeli Society of Biotechnology Engineering, Dec 17<sup>th</sup>, 2017, Tel-Aviv, Israel.
43. Cancer cell-selective clathrin-mediated endocytosis of aptamer-decorated nanoparticles. Shira Engelberg, Julia Modrejewski, Johanna G. Walter, **Yoav D.**

**Livney**, and Yehuda G. Assaraf. The 4th conference of the Israeli Society of Biotechnology Engineering, Dec 17th, 2017, Tel-Aviv, Israel.

### **Participation in organizing conferences**

- 2007 Chairman of the “Technology Track” in “*Food in the New Era 2007*” *The International Conference of the Israeli Food Industry*, June 2007, Tel Aviv, Israel
- 2007 Member of the Scientific Advisory Committee of the *IDDST’s Summit Conference: Advances and Challenges Toward Major Diseases*, which was held November 4-7 in Xi’an and Beijing.
- 2008 Chairman of a session at the *Polymer Network Group Conference*, Larnaka, Cyprus, June 22-26 2008
- 2009 Invited Co-Chairman of a session on Vitamin D and Health in the *IFT 2009*, June 6-10, Anaheim, CA, USA
- 2010 Co-Chairman of the “Studies in nutrition and technology” session, under the “Nutrition track” in *Food in the New Era 2007 The International Conference of the Israeli Food Industry*, June 21<sup>st</sup> 2010, Tel Aviv, Israel.
- 2012 Session Chairman at the Russell Berrie Fall Symposium, Tzuba, Israel, Dec 26-27.2012.
- 2013 **Conference Organizer** (jointly with Prof. Nissim Garti, Hebrew Univ.) of the next "Delivery of Functionality in Complex food Systems 2013", Haifa, Israel, Sept 29<sup>th</sup>-Oct 3<sup>rd</sup> 2013. <http://DOF2013.org>
- 2013 Chairman of a session on Salt reduction at the “*Food in the New Era 2013*” *The International Conference of the Israeli Food Industry*, June 2013, Ramat Gan, Israel
- 2013 Chairman of a session on Bioactive Carbohydrates in Orally Consumed Formulations Eurocarb 17, July 7-11, 2013, Tel Aviv, Israel.
- 2014 Member of the scientific committee, CEFood Congress 2014, Ohrid, Macedonia, May 21<sup>st</sup> -24<sup>th</sup> 2014.
- 2014 **Scientific Chairman** of the “*Food in the New Era 2014*” *The International Conference of the Israeli Food Industry*, June 16-17, 2014, Ramat Gan, Israel.
- 2014 **Chairman of the Dairy Science & Technology Committee** and member of the Scientific Committee at the World Dairy Summit, Oct. 27-31, Tel Aviv. 2014 (unfortunately the conference was cancelled short time before the planned date, due to the war in the summer).
- 2015 Scientific Committee member: “Euro Global Summit and Expo on Food & Beverages” during June 16-18, 2015 at Alicante, Spain.
- 2015 **Member of the International Steering Committee** "Delivery of Functionality in Complex food Systems 2015", Paris, France, July 14-17 2015.
- 2017 **Member of the International Steering Committee** "Delivery of Functionality in Complex food Systems 2017", Auckland, New Zealand, November 2017.
- 2017 Member of the Scientific Organizing Committee, “Cultured Meat Conference at the Technion, Haifa, Israel - Path to Commercialization” May 2017

- 2019 **Member of the International Steering Committee** “8<sup>th</sup> Delivery of Functionality in Complex Food Systems” (DOF8), ([www.dof2019.org](http://www.dof2019.org)), to be held in Porto, Portugal, from the 8th to the 10th of July 2019.

### **SPECIAL PROFESSIONAL ACTIVITIES**

- 1996 Organizing of and lecturing in a 1-day workshop for the Strauss technologists, entitled “Objective (Instrumental) Measurement of Sensory Attributes of Foods, Shavei Zion, Israel, [Invited Speakers included: Prof. D. Lancet, Dr. M. Tishel. Among the lecturers was also Dr. D. Gil, Chief Scientist of Strauss.]
- 1997 Organizing and teaching a HACCP course for technologists in Strauss Dairies Ltd. and Strauss Ice Creams Ltd., Naharia, Israel
- 2002 An invited lecture, entitled: Swelling and Contraction of Hydrophilic Polymer Gels in Presence of Low Molecular Weight Solutes, at a technologists assembly entitled Stabilizers, In Strauss, Carmiel, Israel
- 2004 A two-week visit to Weihenstephan University, Freising, Germany as part of the GIF-YS project, and giving an invited seminar there entitled: Casein micelle as a natural nano-capsular vehicle for nutraceuticals.
- 2006 An invited lecture entitled: Food Nanotechnology, Chief Technologists Forum, Strauss-Elite, Bar-Lev site, Israel.
- 2010 An invited Seminar lecture at Tel Aviv University, entitled: Biopolymeric Nanovehicles for Health-Promoting Compounds
- 2010 An invited lecture, entitled: From assembly of water molecules around sugars, to assembly of milk proteins around anti-cancer drugs. Chief Technologists Forum, Strauss-Group, Bar-Lev site, Israel.
- 2012 Invited Seminar lecture at Ort Braude: Nature-inspired Nanovehicles for Health-Promoting Compounds, May 16<sup>th</sup>, 2012
- 2013 Invited lecture entitled: “Nano delivery agents for disease prevention, diagnostics and therapy” in the 10<sup>th</sup> Annual Mutav-Teachers Assembly, June 2013, Technion, IIT.
- 2013 Invited Seminar lecture at Ort Braude: Nano delivery agents for disease prevention, diagnostics and therapy. Dec. 2013
- 2014 Invited lecture at the Cancer & Signaling Forum, at the Technion: Novel Nanomedical Platforms for Overcoming Anticancer Drug Resistance and for Diagnostics. Feb. 2014
- 2014 Invited lecture at the Nuclear Research Center, Dimona: Water-structure effect of sugar stereochemistry, and its impact on protein thermal stability. Feb. 2014
- 2015 Invited talk at the Riddet Institute, Massey University, Palmerston North, New Zealand: Biopolymeric nanovehicles for health-promoting bioactives. July 28 2015
- 2015 Invited talk at the Global R&D center of Fonterra (“Fonterra Research Center”): Biopolymeric nanovehicles for health-promoting bioactives. Oct 1st 2015
- 2015 Invited talk at the Institute of Fundamental Sciences, Massey University- Palmerston North, New Zealand: Sugar stereochemistry effects on water structure and on protein stability: The templating concept. Dec. 2nd 2015
- 2018 Co-organizing and lecturing in a seminar titled “Health, Food, and the Biotechnology between them, organized by the Swedish Technion Society, February 12, 2018, Vasteras, Sweden.