

Name: Yaron Dekel

Date: 12.2017

CURRICULUM VITAE

1. Personal Details

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Year of birth: 1975

2. Higher Education

a. Undergraduate and Graduate Studies

Period of Study	Name of Institution and Department	Degree
2001	B.Sc, <i>Deans' list</i> , Tel-Aviv University, Faculty of Life Sciences	B.Sc.
2005	M.Sc, <i>with distinction</i> , Tel-Aviv University, Department of Biochemistry, Thesis: Bioscavengers for prophylaxis against organophosphates based on Butyrylcholinesterase formulated in bioadhesive liposomes	M.Sc.
2009	2004-2009 Ph.D, Tel-Aviv University, Department of Biochemistry, Thesis: Diabetes Treatment by Oral Delivery of Novel Fibrillar-Insulin Formulations	PhD

b. Post-Doctoral Studies

Period of Study	Name of Institution and Department/Lab	Name of Host
2010-2014	Migal – Galilee Technology Center – Immunology/Genetics	Prof. Jacob Pitkovski, Prof. Dani Bercovich

3. Academic Ranks and Tenure in Institutes of Higher Education

Years	Name of Institution and Department	Rank/Position
2015-Present	Shamir research institute	Researcher
2016-Present	Zefat Academic Collage	Lecturer

4. Offices in Academic Administration

Years	Name of Institution and Department	Role
2017-Present	Clinical Laboratory, Zefat Academic College	Program Coordinator
2017-Present	Institutional seminars, Shamir Research Institute, University of Haifa	Coordinator

5. Scholarly Positions and Activities outside the University

Years	Memberships in Academic Professional Associations
2004 - 2014	ICCRS – Israeli Chapter of the Controlled release Society
2007 - 2009	ISBMB - Israel Society for Biochemistry and Molecular Biology

Years	Professional Activities
	N.A

Years	Reviewing for Refereed Journal
2015-Present	<i>Journal of Controlled Release</i>

Years	Professional consulting
2012-Present	Consultant and developer of clinical tests at GGA, Galilee Genetic Analysis LTD

6. Active Participation in Scholarly Conferences

a1. International Conferences - Held Abroad

Date	Name of Conference	Place of Conference	Subject of Lecture/Discussion	Role
April 2008	The International Diabetes Federation Western Pacific Congress	Wellington, New Zealand	Insulin fibers as a sustained release depot for active monomers – per oral administration	?

a2. International Conferences - Held in Israel (Invited speaker/Chair)

Date	Name of Conference	Place of Conference	Subject of Lecture/Discussion	Role
2010 October	The 7th annual meeting of the Israeli Chapter of the Controlled Release Society	Haifa, Israel	'new trends and technologies in controlled release based consumer products'	Invited speaker
2012 October	The 8th annual meeting of the Israeli chapter of the controlled Release society	Maalot, Israel		Session Chair
2014, February	The 7th Congress of the Federation of the Israel Societies for Experimental Biology – FISEB (ILANIT)	Eilat, Israel	Functional IgG multimers: formation and sustained release of active antibodies	Invited speaker
2017, March	The 4th meeting for the health disciplinarians	Zefat, Israel	'The human Genome, opportunities and concerns in the 21 century'	Invited speaker

a3. Local Conferences

Date	Name of Conference	Place of Conference	Subject of Lecture/Discussion	Role
2016, June	The 12th Moshe Gurelik Conference for Settling	Kazerin, Israel	'Elite food Development'	Invited speaker
2017, March	Novelties in Agriculture	Hispin, Israel	'The future of food – Myths and reality, challenges and opportunities'	Invited speaker
2017, May	Regional R&D Conference of the Israeli ministry of Science & Space	Ariel University	'The human Genome, opportunities and concerns in the 21 century'	Invited speaker

b. Organization of Conferences or Sessions

Year	Name of Conference	Place of Conference	Subject of Conference	Role
2018 March	The 4th meeting for the health disciplinarians	Zefat, Israel	To be announced	Organizing committee

7. Invited Lectures (Others than in Scholarly Conferences)

Abroad

Year	Name of Forum	Place of Lecture	Subject of Lecture	Role
NA				

In Israel

Year	Name of Forum	Place of Lecture	Subject of Lecture	Role
2015 August	Mada al habar	Wasset	'From Wild to Domesticated'	Invited Lecture
2015 December	Mada al habar	Aniam	'From Wild to Domesticated'	Invited Lecture
2017 May	Mada al habar	Gshur	'Genetics in the 21 century'	Invited Lecture

8. Colloquium Talks

Year	Name of Forum	Place of Lecture	Presentation
None	NA		

9. Research Grants

a. Grants Awarded

Role in Research	Other Researchers (Name & Role)	Title	Funded by (C= Competitive Fund)	Amount	Years
Co-PI	Prof. Rachel Amir (PI)	Producing recombinant human Elastin in transgenic Tobacco Nicotinia plants	C= Ministry of industry, trade & labor	2800,000 \$	2010

Co-PI	Dr. Elina Eisenstein (PI)	Early poultry vaccination for preventing contagious diseases	C= Ministry of industry, trade & labor	2800,000 \$	2011
PI		Development of an automated genetic panel for parentage testing and key breeding traits for the domestic sheep	C= Ministry of Science, Technology and Space	250,000 NIS	2016
PI	Dr. Rachel Brand Co-PI	Selection of SNP markers for parentage testing in dogs	C= Zefat Academic Collage	24,000 NIS	2017
PI		Molecular insights into the domestication process in mammals	C= Zefat Academic Collage	12,800 NIS	2017

b. Submission of Research Proposals – Pending

Role in Research	Other Researchers (Name & Role)	Title	Funded by (C= Competitive Fund)	Years
PI	Guangxi Zhai, Co-PI,	Study of self-assembled Growth Hormone multimers for oral application	C= Ministry of Science, Technology and Space – Israel/China	2017

c. Submission of Research Proposals – Not Funded

Role in Research	Other Researchers (Name & Role)	Title	Funded by (C= Competitive Fund)	Years
PI	Prof. Dani Bercovich Co-PI,	Exploring the mammary involution regulatory network and the possible role of retroposon elements to the process	C=Ministry of Science, Technology and Space	2015
PI	Prof. Dani Bercovich Co-PI	Development of a genetic panel for	C=Ministry of Agriculture	2016

		parentage testing in domestic cattle (Bos Taurus)		
PI	Prof. Rimona Margalit Co-PI	Study of self-assembled Growth Hormone multimers for novel applications	C= ISF	2016
PI	Prof. Dani Bercovich Co-PI	Introducing <i>Eragrostis Tef</i> as a new crop in the Golan Heights: selection for lodging tolerance and higher yield with molecular tools	C=Ministry of Science, Technology and Space	2017

10. Scholarships, Awards and Prizes

2015 Distinguished Lecturer, Tel Hai Academic College.

April 2008 - Constantiner Travel Scholarship for active participation of Ph.D students
In international meetings

April 2008 - The TAU Nano-technology center travel award for active participation in
international meetings

2003-2008 - Awarded research scholarship, Department of Biochemistry, Faculty of
Life Sciences, Tel-Aviv University

2001-2003 - Awarded research scholarship, Department of Biochemistry, Faculty of
Life Sciences, Tel-Aviv University

2003, 2005, 2007 - Awarded excellence scholarship for distinguished achievements in
Studies and teaching, Department of Biochemistry, Faculty of Life
Sciences, Tel- Aviv University

11. Teaching

a. Courses Taught in Recent Years

Years	Name of Course	Type of Course Lecture/Seminar/ Workshop/ Online Course/ Introduction Course (Mandatory)	Level	Number of Students
2013- 2017	Endocrinology Zefat Academic College.	Lecture	B.Sc	42
2013- Present	Biochemistry Zefat Academic College.	Lecture	B.Sc	42
2013- Present	Clinical Biochemistry Zefat Academic College.	Lecture	B.Sc	42

2014- Present	Seminar in Biochemistry Zefat Academic College.	Lecture	B.Sc	10
2014- Present	Principles of Drug Delivery Zefat Academic College.	Lecture	B.Sc	12
2014- Present	from Wild to Domesticated Tel-Hai Academic College.	Lecture	M.Sc	12
2015- 2017	Advanced Evolution Tel-Hai Academic College.	Lecture	M.Sc	12
2013- 2017	Bioinformatics for beginner's Tel-Hai Academic College.	Lecture	B.Sc	60
2017- 2017	Introduction to Biotechnology Tel-Hai Academic College.	Lecture	B.Sc	60
2012- 2017	Genetics Tel-Hai Academic College.	Lecture	B.Sc	200

b. **Supervision of Graduate Students**

Name of Student /	Name of Other Mentors	Title of Thesis	Degree	Year of Completion/ In Progress	Students' Achievements
M.Sc Students					
Oshrat Noked	Prof. Dani Bercovich	Exploring the mammary involution regulatory network in <i>Bovidae</i> and the possible role of RTE elements to the process	M.Sc	In Progress, end January 2018	<ol style="list-style-type: none"> 1. A method for locating promoter sequences in undefined genomes of wild/domesticated mammals. 2. Sequencing 5 promoters of 5 key genes in 10 species of the family Bovidae. 3. Finding new RTE's in 2 key genes promoters. 4. Cloning TP53 promoter of Bovidae and elucidating the BOV-A2 influence on the promoter activity.
Ayelet Barash	Prof. Dani Bercovich	Analysis of genetic control regions in <i>Canidae</i> and <i>Susidae</i>	M.Sc	Work begun November 2017	
Ph.D. Students					
NA					

Post Doctorate Students					
Rachel Brand		Exploring the genetic network that might lead to Neoteny	M.D	2017	In Progress

12. Miscellaneous

Under graduate research students:

- 2012 Oren Yifa, B.Sc project, Tel Hai College, "Sequencing the TP53 promoter in Bovidae".
- 2015 Ram Harrai, B.Sc project, Tel Hai College, "Expression differences in the TP53 gene between different tissues in *Bos Taurus*".
- 2015 Gal Shner, B.Sc project, Tel Hai College, "Expression differences in the TP53 gene between different tissues in *Bos Taurus*".
- 2016 Reut Mor, 11th grade final project in Biology "Using Bioinformatics tools in order to find control regions in mammalian genomes"

Public service activities

2012-2017 Lecturer at different places all over the country on topics related to domestication and evolution.

Professional Certifications:

Approval for performing animal experiment # TAU-R-1011553 (2002).

PUBLICATIONS

A. Ph.D. Dissertation

Title: Diabetes Treatment by Oral Delivery of Novel Fibrillar-Insulin Formulations

Date of submission: 2008

Number of Pages: 86

Language: English

Name of Supervisor: Prof. Rimona Margalit

University: Tel Aviv University

Publications: D2, D3

B. Scientific Books (Refereed)

NA

C. Monographs

NA

D. Articles in Refereed Journals

Published

- [1] D. Peer, **Y. Dekel**, D. Melikhov, R. Margalit, Fluoxetine inhibits multidrug resistance extrusion pumps and enhances responses to chemotherapy in syngeneic and in human xenograft mouse tumor models, *Cancer Res.* 64 (2004) 7562–7569. (I.F 9.1)
- [2] **Y. Dekel**, Y. Glucksam, I. Elron-Gross, R. Margalit, Insights into modeling streptozotocin-induced diabetes in ICR mice., *Lab Anim. (NY)*. 38 (2009) 55–60. doi:10.1038/labani0209-55. (I.F 0.68)
- [3] **Y. Dekel**, Y. Glucksam, R. Margalit, Novel fibrillar insulin formulations for oral administration: Formulation and in vivo studies in diabetic mice, *J. Control. Release.* 143 (2010) 128–135. doi:10.1016/j.jconrel.2009.12.018. [I.F 7.44]
- [4] **Y. Dekel**, Y. Machluf, S. Ben-Dor, O. Yifa, A. Stoler, I. Ben-Shlomo, et al., Dispersal of an ancient retroposon in the TP53 promoter of Bovidae: Phylogeny, novel mechanisms, and potential implications for cow milk persistency, *BMC Genomics.* 16 (2015). doi:10.1186/s12864-015-1235-8. [I.F 3.87]
- [5] **Y. Dekel**, Y. Machluf, T. Gefen, G. Eidelstein, A. Kotlyar, Y. Bram, et al., Formation of multimeric antibodies for self-delivery of active monomers, *Drug Deliv.* 24 (2017) 199–208. doi:http://dx.doi.org/10.1080/10717544.2016.1242179. [I.F 6.47]
- [6] **Dekel, Y**, Machluf, Y, Brand, R, Noked Partouchea, O, Ben-Shlomo, I, Bercovich, Mammal domestication and the symbiotic spectrum, *PNAS.* 114, 27 (2017) doi: 10.1073/pnas.1705784114. [I.F 9.66]
- [7] **Dekel Y**, Machluf, Y, Stoler, A, Aderet, A, Baumel, D, Kellerman, E, Plotsky, Y, Noked Partouche, O, Elhalal, G, Brand, R, Ben-Shlomo, I and Bercovich, Expanding the world map of canine nt230(del4) MDR1 mutation frequency: differences in prone pure breeds, their mixes and mongrels in Israel - insights and clinical implications., *BMC Vet Res*, 13, 333 (2017). [I.F 1.75]

Accepted for Publication

- [1] Arie Berkovitz, **Yaron Dekel**, Revital Goldstein, Shhadeh Bsoul, Yossy Machluff & Dani Bercovich. 'The significance of human spermatozoa vacuoles can be elucidated by a novel procedure of array Comparative Genomic Hybridization', *Human Reproduction* [I.F 5.02 – Research Paper (Accepted 12/2017)]

E. Articles or Chapters in Scientific Books (Refereed)

NA

F. Articles in Conference Proceedings

NA

G. Entries in Encyclopedias

NA

H. Other Scientific Publications

Published

1. **Dekel Y, Margalit R (2014) System for delivery of protein in insoluble fibrillar or aggregate form. US patent # 8,632,802**
2. **Dekel Y, Margalit R. (2015) System for delivery of protein in insoluble fibrillar or aggregate form. European patent application 09715885.1. 2259775**

Research reports:

NA

I. Other Works and Publications

1. **Dekel Y, Domestication of dogs. The Animals and Society Journal, spring 2003**
2. **Dekel Y, Animal care in Jewish theology. The Israeli Kennel Club Journal, February 2005**
3. **Dekel Y, 'Barcode for food tracking', Channel 2, http://www.mako.co.il/news-channel2/Channel-2-Newscast-q2_2015/Article-bfe824830a27d41004.htm May 2015**
4. **Dekel Y, 'Dr. Doolittle from Alonei Habashan', Makor Rishon, <http://www.nrg.co.il/online/13/ART2/718/394.html> August 2015**
5. **Dekel Y, 'Feces startup' Channel 1, <https://www.youtube.com/watch?v=jCY92LMRHdQ> November 2015**

J. Submitted Publications

N.A

K. Summary of my Activities and Future Plans

Research topics:

1. Genomic basis for Neoteny in domesticated mammals.

The evolutionary process of animal and plant domestication was the driving force for the human transition from the ancient hunting and gathering lifestyle to the settled agricultural and cultural one. On an evolutionary timescale, domestication is very recent and rapid. However, its impact on all aspects of human society - civilization, culture and industry, extends way beyond its biological aspects. Although domestication occurred several times in different locations, domestic animals - from the first domesticated dog to recently domesticated laboratory mice - unanimously displays what has been defined as Neoteny (juvenilization), the retention of (behavioral and morphological) traits that are typically seen only in juveniles by adults. Domesticated animals are also more fertile but more prone to cancer than their wild counterparts, an aspect with important implications. The remarkable observation that Neoteny, a multifaceted phenomenon, is common to evolutionarily remote domesticated mammalian orders, suggests the existence of a shared key genomic regulatory mechanism.

The overall goal of my research is to search for the key genetic events responsible for the vast changes that occur upon the shift from a wild to a domesticated animal.

Our research focuses on comparing regulatory sequences (i.e., promoters) of wild animals and their domesticated counterparts. The research so far revealed the dispersion of Bov-A2 retroposon element in Bovidae TP53 core promoter [Dekel et al. BMC Genomics, 2015). Along with the discovery of a novel molecular mechanism and evolutionary aspects for its dispersal, it was shown in silico, that the retroposon encompasses unique binding sites for key transcription factors such as STAT3 and NFkB which are known to play key roles during the process of mammary involution. The transposable element is absent from the TP53 promoter of domestic cows, probably due to a point mutation in the palindromic insertion site, which in turn may lead to longer milk persistency. In light of our previous results, there is a possibility that the absence of Bov-A2 from the TP53 P1 promoter of Bovini domestic species (cows and buffalos) might be the cause for delayed mammary involution and prolonged milk persistency. Several constructs with different TP53 promoter elements (with and without Bov-A2) were cloned and tested for their expression levels. Bov-A2 element was found to repress expression (data not published). So far, we sequenced five other related key genes promoters in Bovidae (GHR, SIRT1, PITX3, PITX2, IRF1) and found two more retroposonal elements in specific locations in core promoter regions (data not published). We are now extending our research to *Canidae* and *Susidae* with similar approaches.

2. Agrigenomics innovations

Our lab collaborates with the GGA genetic center in Kazrin. The GGA genetic center is equipped with state-of-the-art genomic devices (for example, Nextseq 500 and 550, Mysec, Fluidigm Bio mark HD and Junu etc.) and carries a GLP certificate. Our unit is working with farmers to develop novel products based on genetic markers aimed for specific cultivars or bovine species important for the local agriculture industry. These products will supply genetic fingerprinting to cultivars, enabling

farmers to track their products ("from farm to fork") and promise the customers transparency from the field to the plate. Alongside genetic fingerprinting, the genetic products, we will develop an ability to track genetic polymorphism responsible for specific quality traits and will enable farmers to wisely choose genetic variants of their future cultivars. This project is titled "Elite Food" and is aimed to bring the local farming industry to a new era of growing cultivars. We are now in the process of developing a parentage genetic chip for sheep that is aimed to solve the very harsh problem of sheep thefts in Israel.

3. Oral delivery of human growth hormone (GH)

This project, although not related to genetics is part of my specialties in protein drug delivery. In this project we aim to develop bio-compatible and bio-available oral formulations of GH based on GH fibrils alone or coated with Hyaluronan and solve one of the most problematic issue in protein medication – obligatory sub cutaneous applications. These formulations are intended to address an unmet therapeutic need and are based on a novel concept of using aggregated reversible protein formulations instead of native proteins with an outer shield and/or with mucosal penetration enhancers (Dekel et al. Journal of Controlled Release 2010, Dekel et al. Drug Delivery 2017). These formulation are unique since the drug itself acts as the depot, protector and sustained release matter with no other additives or micro/nano particles (Dekel Y, Margalit R 2014, US patent # 8,632,802 and Dekel Y, Margalit R, 2015, European patent application 09715885.1. 2259775). Apart from Hyaluronan which is a natural molecule that might be used here as a binding molecule to the mucosal epithelium (and is today given orally for other indications), no other materials are involved, apart from GH, a fact that may facilitate future drug registration. A grant proposal was submitted on October 2017 with a Chinese collaborator, Prof. Guangxi Zhai from Shandong University, China.