



3rd Edition of the Young Bachelor & Master Biosciences
European Student Congress

Abstract Booklet



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ABOUT YOUNG BM

Young BM is the abbreviation of “*Young Bachelor & Master Bioscience European Student Congress*”. It was founded in 2017 by students from the University of Malta. The basic idea was to connect European bioscience students, allowing for the exchange of ideas, perspectives and experiences about student concerns, matters and create debate. After a successful start with representatives from 18 countries, it was decided to be continued as an annual event to be held in a different country each year if possible. Since then, every host country has built upon the initial idea and upgraded it with different aspects of their own cultural background, enriching the congress. We want to say that, apart from other congresses that only focus the main part in academic stuff, social parts are on the other hand, in order to enrich and to reach a hundred per cent full experience. This year 2019 will be the third edition of this Congress and it will take part in Spain for the first time.

The biological topics presented are always based upon the trends in research that complement both local institutions and their resources. Lectures are held at a local university, so the students gain a detailed insight into other university systems. Participants are strongly encouraged to present their research or interests, thus gaining experience on an international level, especially for Bachelor students. Also during interactive workshops, students discuss theoretical, practical topics related to science. Debate sessions also give the students the opportunity to talk and exchange ideas about bioethical and global science topics too.

Social events further enhance contacts between the international and the host country participants. This allows everybody to create a personal network of collaboration and friendship throughout Europe, thereby facilitating student exchanges and international work prospective experience. This promotes a mutual understanding between countries and nations through academic and cultural exchange whilst developing a new perspective on their own educational systems.

Although Young BM Network is not a rigid organization, it has its general headquarters in Malta, as that was the first country to host it. Within these international meetings, representatives of the participating countries gather to discuss topics such as: developments within their universities, different biological study programs, and the various ways of student collaboration.

Please, remember that during the congress there is no discrimination based on nationality, religion, gender, or any other personal attributes, identity, or beliefs so long as these beliefs do not lead to discriminating expressions in word or action. This event is organized annually by students and is open to all students. Participants will take part of a living community that connects bioscience students throughout the year.

The real origin of this event is other congress, the Bioevolutionary Congress (Biological Revolutionary Congress for European Students), an annual event that took place during more than 10 years during the 90's decade in different countries. The first edition took place in Leeds in 1990, with the idea to unite students from different parts of the United Kingdom. They also decided to invite guest students from Germany, Netherlands and Sweden. The following year, Swedish participants decided to organize the next edition of the congress in Karlstad in summer 1991. During the following annual editions, more and more students from different countries



took part, including international students from Canada in the 1999 edition in London, United Kingdom. The last edition of Bioevolutionary took place in Hamburg in summer 2000. The next edition was supposed to be hosted in Malta after winning the right to host it in Germany.

Nevertheless, there weren't any agreements between the University and the student's organizations, so it was finally cancelled. There wasn't enough time to other country to organize it, so it was decided that Malta had the opportunity to organize it in 2002, but again was cancelled, but this time, it was decided to postpone it indefinitely.

But almost 16 years later, international students in Malta discovered all the documents that showed the preparations for what was going to be the 2001-2002 edition of the Bioevolutionary in Malta. So they decided, with the help of Maltese students and the Sciences Faculty of the University of Malta, to reorganize the congress with a new name, image and purposes.

That led to the first edition of Young BM 2017 in Malta, the next year in Reykjavik and finally, this year in Madrid.

A common feature in both Bioevolutionary and Young BM is the existence of a main topic that unites not only all the topics from the participants but also the debates, workshops and keynote lectures.

→Young BM 2017 Malta main topic:

"Technology vs Biology?"

In order to unite the relationship between the new technologies and their application in the different fields of biology, it is useful to know how this can be carried out, and therefore, that there is not a confrontation but a relationship that have to last during the time.

→Young BM 2018 Reykjavik main topic:

"Our daily Biology"

Biology is a branch of experimental science that encompasses the study of living beings through different disciplines, but daily biology is also present in the daily actions of day to day. In what way does that happen?

→Young BM 2019 Madrid main topic will be:

"The show must go on"

In a critical moment for the planet and all the life beings that live here, the biosciences have to be present and prepared to provide solutions, professionalism, capacitance and motivation, and that without the young and future scientists, it will not be possible, therefore, the show must continue.

Also referred to the ability of science to provide solutions to problems posed in various ways, calls for communication between different scientists from different places, so to strengthen ties for any disagreement that comes is essential to provide such solutions by science.



ABOUT THE HOST CITY: MADRID

Madrid is the capital of Spain and the largest municipality in both the Community of Madrid and Spain as a whole. The city has almost 3.2 million inhabitants and a metropolitan area population of approximately 6.5 million. It is the third-largest city in the European Union (EU), smaller than only London and Berlin, and its monocentric metropolitan area is the third-largest in the EU, smaller only than those of London and Paris.

Madrid lies on the River Manzanares in the centre of both the country and the Community of Madrid (which comprises the city of Madrid, its conurbation and extended suburbs and villages); this community is bordered by the autonomous communities of Castile and León and Castile-La Mancha. As the capital city of Spain, seat of government, and residence of the Spanish monarch, Madrid is also the political, economic and cultural centre of the country.

Madrid is home to two world-famous football clubs, Real Madrid and Atlético de Madrid. Due to its economic output, high standard of living, and market size, Madrid is considered the major financial centre of Southern Europe and the Iberian Peninsula; it hosts the head offices of the vast majority of major Spanish companies, such as Telefónica, IAG or Repsol. Madrid is the 10th most liveable city in the world according to Monocle magazine, in its 2017 index.

Madrid houses the headquarters of the World Tourism Organization (UNWTO), belonging to the United Nations Organization (UN), the Ibero-American General Secretariat (SEGIB), the Organization of Ibero-American States (OEI), and the Public Interest Oversight Board (PIOB). It also hosts major international regulators and promoters of the Spanish language: the Standing Committee of the Association of Spanish Language Academies, headquarters of the Royal Spanish Academy (RAE), the Cervantes Institute and the Foundation of Urgent Spanish (Fundéu BBVA). Madrid organises fairs such as FITUR, ARCO, SIMO TCI and the Cibeles Madrid Fashion Week.

While Madrid possesses modern infrastructure, it has preserved the look and feel of many of its historic neighbourhoods and streets. Its landmarks include the Royal Palace of Madrid; the Royal Theatre with its restored 1850 Opera House; the Buen Retiro Park, founded in 1631; the 19th-century National Library building (founded in 1712) containing some of Spain's historical archives; a large number of national museums, and the Golden Triangle of Art, located along the Paseo del Prado and comprising three art museums: Prado Museum, the Reina Sofía Museum, a museum of modern art, and the Thyssen-Bornemisza Museum, which completes the shortcomings of the other two museums. Cibeles Palace and Fountain have become one of the monument symbols of the city. Madrid is also the most visited city of Spain.



ABOUT THE HOST COUNTRY: SPAIN

Spain, country located in extreme southwestern Europe. It occupies about 85 percent of the Iberian Peninsula, which it shares with its smaller neighbour Portugal.

Spain is a storied country of stone castles, snow-capped mountains, vast monuments, and sophisticated cities, all of which have made it a favoured travel destination. The country is geographically and culturally diverse. Its heartland is the Meseta, a broad central plateau half a mile above sea level. Much of the region is traditionally given over to cattle ranching and grain production; it was in this rural setting that Miguel de Cervantes's Don Quixote tilted at the tall windmills that still dot the landscape in several places. In the northeast countries are the broad valley of the Ebro River, the mountainous region of Catalonia, and the hilly coastal plain of Valencia. To the northwest is the Cantabrian Mountains, a rugged range in which heavily forested, rain-swept valleys are interspersed with tall peaks. To the south is the citrus-orchard-rich and irrigated lands of the valley of the Guadalquivir River, celebrated in the renowned lyrics of Spanish poets Federico García Lorca and Antonio Machado; over this valley rises the snow-capped Sierra Nevada. The southern portion of the country is desert, an extension of the Sahara made familiar to Americans through the "spaghetti western" films of the 1960s and early '70s. Lined with palm trees, rosemary bushes, and other tropical vegetation, the south eastern Mediterranean coast and the Balearic Islands enjoy a gentle climate, drawing millions of visitors and retirees, especially from northern Europe.

Nearly half of Spain is covered by spontaneous vegetation of some sort, but only a small proportion (largely confined to the mountains) is classified as dense woodland. Northern Spain has heath and deciduous woodland (oak, beech). The mountains of the northern Meseta and the Iberian and Baetic cordilleras carry deciduous Portuguese oak; those of the central Pyrenees, the Iberian ranges, and the Central Sierras have diverse pine species. The rest, more than half of Spain, has a Mediterranean vegetation characterized by evergreen oak (*Quercus ilex*) and other drought-resistant plants commonly reduced to scrub status (matorral). An esparto grass (*Lygeum spartum*) is found in the steppes of La Mancha and the southeast; the esparto products of Spain (paper, rope, basketry), however, come from an associated alfa grass (*Stipa tenacissima*). Poplar and eucalyptus have become widespread since the 19th century.

The proximity of Africa has given Spain more African species of wildlife than are found in the other Mediterranean peninsulas, while the Pyrenean barrier and the general extent of the country explain the number of indigenous species. The European wolf and the brown bear survive in the scarce wild areas of the northeast. The Barbary ape is possibly indigenous but is more likely an import from North Africa. It survives only under protection, at Gibraltar. The wild boar, ibex (wild goat), and red and fallow deer are more common. More than half of the bird species of Europe are found in Coto Doñana National Park, at the mouth of the Guadalquivir; the Spanish imperial eagle and other large species such as the eagle owl, the buzzard, and several varieties of pheasant are native to the high Pyrenees. Desert locusts have been known to invade southern Spain from North Africa.



ABOUT THE HOST UNIVERSITY: COMPLUTENSE UNIVERSITY OF MADRID

The Complutense University of Madrid is the oldest university in Madrid. It offers a wide range of undergraduate and graduate programs in a lot of different fields. Complutense University has 26 different faculties. The university also offers different research opportunities in several fields, not only at a national level, but also international projects are carried on by UCM scientists.

Biological Sciences Faculty is the host faculty at UCM. Here will take place all the academic part of the congress, including lectures, oral presentations, workshops, poster presentations and debate sessions.



Photographs taken by Biological Sciences Faculty Staff



IMPORTANT ADDRESSES AND PHONE NUMBERS

On your arrival at the Adolfo Suárez Madrid-Barajas airport there will be volunteers waiting to guide you to take the **Madrid airport express bus**, which is the fastest transport to the centre of the capital, where the hostel is located. The prize of this bus is 5 EUR and tickets must be purchased on the bus via PayPal, credit/debit card and cash.

The frequency of service of this bus is every 15 minutes, and it stops at terminals 1, 2 and 3 together and terminal 4 at another stop. The stop where you will have to go down is Cibeles. At this stop there will be also volunteers waiting for you to guide you to the hostel.

HOSTEL DETAILS:

-Motion Hostel Gran Vía → Address: c/ Mesonero Romanos 7, 28013 Madrid



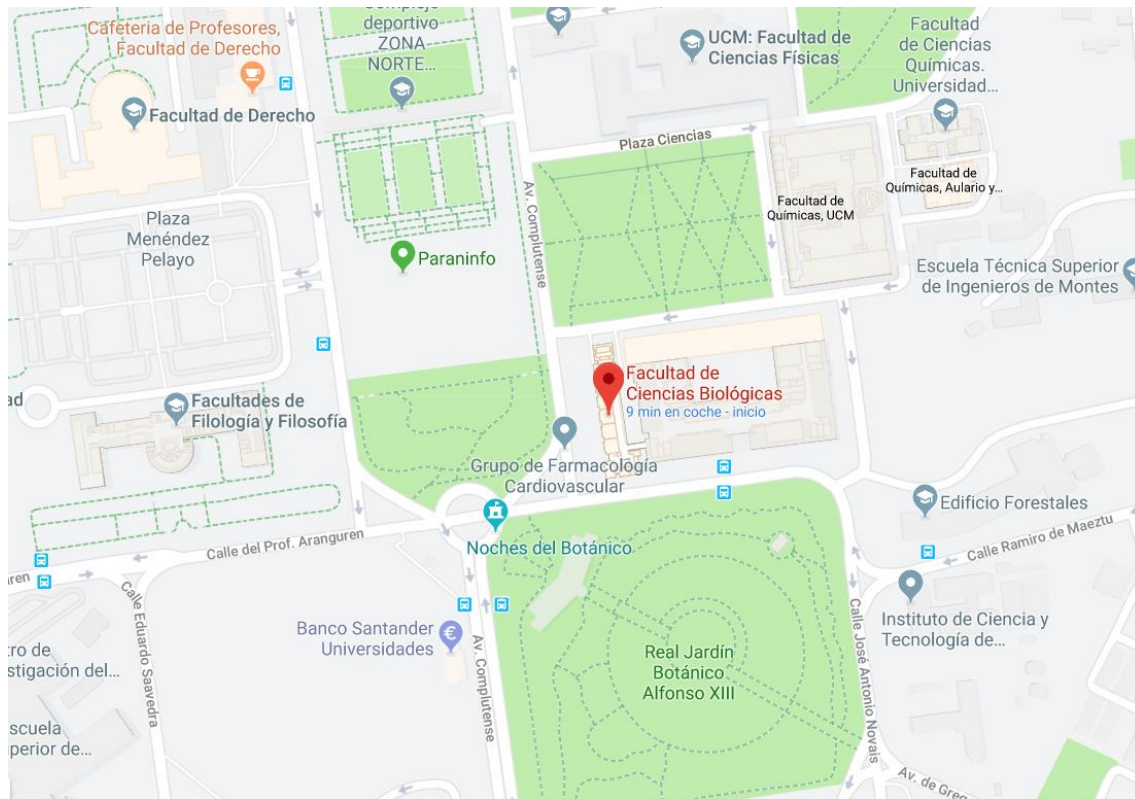
Please note that volunteers will be at the airport and at the bus stop from 11:00 a.m. to 6:30 p.m. on July 20. After that time there will be volunteers just waiting at the bus stop to guide you to the hostel. Participants arriving before and later 20th July won't have our team waiting for you. In that case, participants must go to the hostel during 20th July where the organizers will help them to check-in with the rest of participants.

From the airport you can also take the Metro (Line 8) and taxis (Renfe (Trains) lines are having some troubles during this summer.



BIOLOGICAL SCIENCES FACULTY DETAILS:

→Address: C/ José Antonio Novais 12, 28040 Madrid



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Getting from the hostel to university:

Every day, participants will be guided to the university with the organizing team, which will be accommodated at the hostel too. As we have to be at 9:30 am at the Faculty, we will leave the hostel by 9:00 am. The path that we will follow to go to the faculty will be:

-Take the Metro from the hostel, **Callao-line 3 (yellow one) to Moncloa** (end of line 3) and there in Moncloa, we will change the line to line 6 (grey one) to **Ciudad Universitaria**. Finally from there we will walk to the Faculty (5 minutes walking).

Important phone numbers:

+34 112 → Call in case of an emergency (medical emergency, police and fire emergencies)

+34 915 31 33 89 → Hostel phone number

+34 913 94 50 66 → Biological Sciences Faculty UCM phone number

+34 686 04 90 56 → Alfredo's phone number

+34 603 24 16 30 → Laura's phone number

+34 677 84 99 94 → Marcos's phone number

+34 658 48 94 49 → Claudia's phone number



YOUNG BM 2019 TEAM

→Organizing Team



Alfredo

Laura

Marcos

Claudia

→Guest Volunteers (Former organizers from past editions)



Maurice (Malta 2017)

Íris (Iceland 2018)

→Volunteers

Adri	Alba	Ana	Ana Young	Ángela
Javier B.	Carlos	Daniel	Erika	Fran
Gemma	Irati	Irene C.	Jelena	Jorge
Kevin	Laura	Luisa	Marwane	Mery
Nerea	Paula P.	Patricia	Rebeca	Andrea

TIME	SAT-20 JULY	SUN-21 JULY	M-22 JULY	T-23 JULY	W-24 JULY	TH-25 JULY	F-26 JULY	SAT-27 JULY
7:30		Wake up and breakfast	Wake up and breakfast	Wake up and breakfast	Wake up and breakfast	Wake up and breakfast	Wake up and breakfast	Breakfast, check-out and goodbye
8:00								
8:30								
9:00		Special Activity (El Rastro)	Oral Presentations Group 1	Oral Presentations Group 3	Oral Presentations Group 6	Oral Presentations Group 8	Visit to the Royal Botanical Garden	
9:30								
10:00								
10:30								
11:00		Lunch & Free Time	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Lunch & Free Time to do the Luggage	
11:30								
12:00								
12:30		Check-in and welcome to the participants	Lunch	Oral Presentations Group 2	Oral Presentations Group 4	Oral Presentations Group 7	Poster Session 3	
13:00								
13:30								
14:00	Poster Session 1		Oral Presentations Group 5	Poster Session 2	Poster Session 4			
14:30								
15:00								
15:30	Student Workshops		Debate Session	Professor Lecture	Debate Session (Retiro Park)			
16:00								
16:30	Visit to the National Natural Sciences Museum		Special Activity (Swimming Pool)/Free Time	Special Activity (Sand Bar or Ice Bar)/Free Time	Special Activity (Faro de Moncloa)/Free Time	YOUNG BM FIELD CHAMPIONSHIP (Retiro Park)	Closing Ceremony (Faculty)	
17:00								
17:30								
18:00	Opening Ceremony	Dinner	Dinner	Dinner	Dinner	WHERE AM I FROM? SPANISH PRESENTATION, DINNER AND SPANISH PARTY	Special Dinner and Farewell Party	
18:30								
19:00	Night Welcome program	YOUNG BM DISCOVER MADRID (Madrid City Centre)	Country Presentations	Country Presentations	Country Presentations	Night Program		
19:30								
20:00								
20:30								
21:00								
21:30	Night Program	Night Program	Night Program	Night Program				
22:00								
22:30								
23:00 to end								

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DEFINITIVE PLANNED SCHEDULE





ORAL PRESENTATIONS AND POSTERS SCHEDULE

ORAL PRESENTATIONS SCHEDULE							
Monday, 22 nd July		Tuesday, 23 rd July		Wednesday, 24 th July		Thursday, 25 th July	
Group 1	Kevin Hernández	Group 3	Elena Marín	Group 6	Carlos Serna	Group 8	Anastasia Palatzidi
	Lucija Librenjak		Jaime Martín		Mirjana Babic		Leticia Lucero
	Silva Gradovska		Tomás Garnier		Javier Bujalance		Jorge Iribarren
	Daniel Acevedo		Luisa Hernández		Marija Lugar		Liene Laizane
Group 2	Giorgiana Negrea	Group 4	Claudia García	Group 7	Nikoleta Milanovic		
	Ezra Bruggeman		Marina Jiménez		Belén Cerrada		
	Jorge Hidalgo		Javier de la Casa		Eleftheria Papadopoulou		
	Vitalia Pes		María Durán & Elena Herrero		Nina Dobric		
	Marco Garranzo		Keisi Mecaj				
		Group 5	Ana Saurí				
			Vida Kufrin				
			Arina Acatrinei				
			Vasiliki Pantazi				
			María Martín				



POSTER SESSIONS SCHEDULE			
Monday, 22nd July Poster Session 1	Wednesday 24th July Poster Session 2	Thursday 25th July Poster Session 3	Thursday 25th July Poster Session 4
Tomás Garnier	David A. Oropesa	Ioana Patricia Riurean	Roxana-Mihaela Apetrei
Dimitra Palioura	Ezra Bruggeman	Inés Peralta	Cristina Magdaleno
Elena Flores & Cristina García	Elena Herrero & María Durán	Teodora Lukic	Vuk Gordic
George-Ionut Suicu	Madalina Elena Ristea	Javier Bujalance	Darío B. Roca
Íris Henríksdóttir	Eleftheria Papadopoulou	Bogdan Andrei Miu	Marija Nedeljkovic
Jorge Hidalgo	Cristina Cuesta	Eduardo Palominos	Miriam Villasevil
Miriam Jiménez	Sanja Sajkunic	Andoni Jiménez	Paula Losada
	Carlos Molinero	Paula Rodríguez	Roosje Raeymaekers
	Uliana Shvetsova	Cristina Matas	Vasiliki Skara

WORKSHOP SESSIONS SCHEDULE- Monday 22nd July	
Amanda Ndroqi	Matthias Zumbach

COUNTRY PRESENTATIONS SCHEDULE			
MONDAY 22/07	TUESDAY 23/07	WEDNESDAY 24/07	THURSDAY 25/07
UK	SERBIA	GERMANY	SPAIN (Host Country)
ROMANIA	ITALY	HUNGARY	
SWITZERLAND	BELGIUM	GREECE	
CROATIA	ALBANIA	LATVIA	
-	ICELAND	-	Guest Country USA

*Maltese organizing team from Young BM 2017 will organize an original format country presentation.



ACADEMIC PROGRAM ELEMENTS

Professor lecture

This year we will have the honour to hear a lecture from one of the principal researchers in Madrid. The topic will be general science diffusion and how to relate it with the main topic of this year edition.

Oral Presentations

Students will have the opportunity to share their lab works, projects, bachelor & master thesis, post master researches, general scientific topics, etc. Also this is a good way to develop presentations skills in a friendly, international and scientific atmosphere. Each presentation will last for 10 minutes plus 5 more for questions. All presentations will be heard by our organization team in order to choose the best presentation to be awarded.

Poster sessions

There are some students that will have the chance to talk in more detail about their research work by presenting their poster. Also it is a good way to discuss it with other participants in a less formal setting. Everybody is assigned to a specific session. Organizing and volunteer team will listen to your poster presentation to choose the best to be awarded too.

Student Workshops

There are also few students that chose to give a workshop in order to have a time to discuss a topic in a more interactive way with the participants. All workshops will take place on the same day and all organizers, volunteers and participants will have to choose which one they want to attend.

Debate Sessions

All organizers, volunteers and participants will be given a topic to discuss, divided in two teams. That topic will be something related to global ecological issues. This is a good opportunity to exchange ideas and see how all this problems are solved in different countries.

SOCIAL PROGRAM ELEMENTS

Young BM Discover Madrid!

This is a traditional activity that is used to show the international students about the host city in an interactive way. Also you will have the chance to meet the organizers and volunteers too. It is also a good opportunity to break the ice between participants.

Young BM Field Championship



This is a traditional activity in all Young BM and Bioevolutionary editions. It is a scientific gymkhana organized by the volunteers and organizers and it takes place in a natural space each year (this time it will take place at the Retiro Park).

Country Presentations

International participants will have the opportunity to show their culture from their home countries. This presentation has to be interactive and funny. It is typical to bring typical food, drinks, costumes, dances, songs, games, sketches, etc. Be creative, because the best country presentation will also be awarded. Spanish participants will have to organize an international themed country presentation about the scientific and cultural heritage from a couple of random countries.

Special Activities

In order to make sure you enjoy an amazing experience, there are some activities planned. One of them is to go to “El Rastro” on Sunday Morning to enjoy an historical old street market, also it is planned to go to a swimming pool, Faro de Moncloa, an Ice Bar or a Sandbeach Bar, etc.

Small excursions

Scientific tourism is important too, as this is a scientific event. Guided visits to the Royal Botanical Garden and the National Natural Sciences Museums are planned.

Opening Ceremony

Organizers will give a warm welcome the first day of the event. Planned are some activities to break the ice between everybody.

Closing Ceremony

Before the farewell dinner and party, at the Faculty, this ceremony will take place. Certificates will be given and also the awards to the Best Oral Presentation, Best Poster, and Best Country Presentation and Themed presentation will be given too. Also the winning teams from gymkhanas will receive their prizes. Participants from the different countries can propose their bids to host the next edition of **Young BM in summer 2020**. If there are some bids, all (participants, volunteers and organizers) will have to vote.

THEMED COUNTRY PRESENTATIONS ISSUES

Due to the tight planned schedule of the congress, finally it has been decided that this traditional part of the social programme won't take place this year. We hope next edition this part will be taken into account as usual.



PARTICIPANTS OF 2019 MADRID EDITION

ALBANIA

Keisi Mecaj

Amanda Ndroqi

BELGIUM

Ezra Bruggeman

Roosje Raeymaekers

Paula Rodríguez

CROATIA

Vida Kufrin

Lucija Librenjak

Marija Lugar

GERMANY

Cristina Matas

GREECE

Anastasia Palatzidi

Dimitra Palioura

Eleftheria Papadopoulou

Vasiliki Skara

HUNGARY

Vasiliki Pantazi

ICELAND

Íris Henriksdóttir

ITALY

Vitalia Pes

LATVIA

Silva Gradovska

Liene Laizāne

ROMANIA

Arina Lorena Acatrinei

Roxana-Mihaela Apetrei

Bogdan Andrei Miu

Giorgiana Gabriela Negrea

Madalina Elena Ristea

Ioana Patricia Riurean

George-Ionut Suicu

SERBIA

Mirjana Babic

Nina Dobric

Vuk Gordic

Teodora Lukic

Nikoleta Milanovic

Marija Nedeljkovic

Sanja Sajkunic

SPAIN

Claudia García Alcalde

Kevin Hernández López

Leticia Lucero

Jaime Martínez Alonso

Carlos Molinero

Ana Saurí Tamarit

Carlos Serna Bernaldo

SWITZERLAND

Matthias Zumbach

UNITED KINGDOM

Tomas Garnier Artiñano

Uliana Shvetsova



UCM Host students

Daniel Acevedo	Luisa Hernández Baraza	Elena Marín Rodríguez
Javier Bujalance Fdez.	Elena Herrero Esteban	María Martín Santamaría
Belén Cerrada Pérez	Jorge Hidalgo Álvarez	David A. Oropesa Olmedo
Cristina Cuesta Bravo	Jorge Iribarren Baró	Eduardo Palominos García
Javier de la Casa Sánchez	Andoni Jiménez Bravo	Inés Ripa Peralta
María Durán Rodríguez	Marina Jiménez Lao	Darío Roca Campos
Elena Flores Salguero	Miriam Jiménez Moreno	Miriam Villasevil Gálvez
Cristina M. García Riveiro	Paula Losada	
Marco Garranzo	Cristina Magdaleno Tapia	

International participant groups:

The groups formed by students, with the aim to participate in the social activities, are thought to facilitate the communication and to keep the contact between them before and at the congress. We tried to mix all the foreign and the Spanish Students in order to begin the collaboration between all of them. UCM host students will be randomly assigned to the groups once they confirm their participation at the social activities.

Those activities are **Young BM Discover Madrid**, **Young BM Field Championship** and also they will be used **on the trips** and other activities too. Each group will be mentored by a volunteer/organizer. This year the names of the groups are based in mammals and birds species that are examples of the Spanish fauna. Mentor names are written below the group names.

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LINCES	UROGALLOS	LOBOS	OSOS PARDOS	DESMANES
<i>Patty</i>	<i>Jorge</i>	<i>Alba</i>	<i>Daniel</i>	<i>Gemma</i>
Miriam Villasevil	Lucija Librenjak	Uliana Shvetsova	Arina Lorena Acatrinei	Madalina Elena Ristea
Teodora Lukić	Nina Dobrić	Ioana Patricia Riurean	Sanja Sajkunić	Eleftheria Papadopoulou
Dimitra Palioura	Vasiliki Skara	Bogdan Andrei Miu	Giorgiana Gabriela Negrea	Silva Gradovska
Vuk Gordić	Amanda Ndroqi	Ezra Bruggeman	Nikoleta Milanović	Marija Lugar
Mirjana Babić	Anastasia Palatzidi	Vasiliki Pantazi	Vitalia Pes	Paula Rodríguez
Liene Laizāne	George-Ionut Suicu	Keisi Mecaj	Roxana-Mihaela Apetrei	Ana Saurí
Vida Kufrin	Marija Nedeljković	Dimitra Palioura	Jaime Martínez	Tomás Garnier Artiñano
	Íris Henríksdóttir	Matthias Zumbach		



ORAL PRESENTATIONS ABSTRACTS

Mitochondrial Genetic Diversity of Archeological *Ovis aries* Stocks (Capidava, South-East Romania)

Arina Acatrinei^{1, *}, Ioana Rusu^{1,2}, Cristina Mircea^{1,2}, Beatrice Kelemen^{1,2}

¹*Babeş-Bolyai University, Faculty of Biology and Geology, Department of Molecular Biology and Biotechnology, Cluj-Napoca, Romania*

²*Babeş-Bolyai University, Institute of Interdisciplinary Research in Bio-Nano-Sciences, Molecular Biology Center, Bioarcheology group, Cluj-Napoca, Romania*

*arina.acatrinei@gmail.com

Keywords: aDNA, mtDNA, control region, sequencing, genetic variability

Ancient DNA studies on animal bones found at archeological sites which are aimed at characterizing the genetic diversity of domestic animals from different historical eras - such as the Iron Age or the Medieval Age - are helpful when it comes to understanding the way in which ancient human societies lived, by allowing us to understand the degree to which they practiced artificial selection and the role they played in defining current breeds.

This study is aimed at characterizing a stock of seven sheep from animal bones found alongside human remains at the Capidava archeological site (South-East Romania), by analyzing a sequence of 803 bp, made up of five overlapping regions, from the control region of the mitochondrial DNA.

DNA extraction was carried out using an adapted column matrix protocol, which combines a per-se extraction step according to Yang et al, 1998 and Anderung et al., 2008, with the washing, drying and elution steps according to the NucleoSpin[®] Tissue kit by Macherey-Nagel (Germany). The PCR setup was adapted to include BSA, higher reagent concentration, lower alignment time and a higher number of cycle repetitions.

The stock has been partially characterized and the results indicate a degree of genetic variability among the individuals analyzed.

Endosomal Signaling Carried Out By GPCR

Daniel Acevedo Gómez*

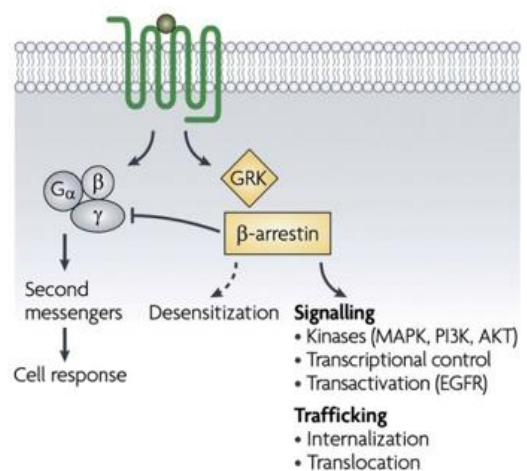
Complutense University of Madrid

*daniac01@ucm.es

Keywords: Signaling, Endosome, GPCR, G protein, β -arrestin.

The G protein coupled receptors (GPCRs) are transmembrane proteins composed of seven transmembrane domains and both intercellular and extracellular loops. These receptors are involved in the vast majority of cellular signaling way through the former's coupling with heterotrimeric proteins with hydrolytic activity of guanine nucleotides (heterotrimeric G protein).

The classical or canonical location of these receptors is the cell membrane, where the receptors interact with the exoplasmic side, with agonists promoting a conformational change, allowing the receptor to interact with G protein, causing its activation and the beginning of the signaling.



Cells may become insensitive to the signaling of a GPCR by homologous desensitization, it internalizes the receptor, thus inactivating the G protein which is the primary messengers of this activity. This is achieved by blocking the third intracellular loop and the carboxyl terminal domain of the receptor, phosphorylating them by a protein called G protein-coupled receptor kinase (GRK), this causes the coupling of another protein dubbed β -arrestin. Following these events, the receptors are internalized in an endosome which depending on the signaling's duration, either it fuses again with the membrane, recycling the receptor, allowing it to restart the cycle, or it degrades the endosomal content, needing a new expression of these receptors to begin a new signaling.

This apparently is an inactivation system which prevents the GPCR from interacting with G protein, considering the signaling to be finished; however, it was discovered that the internalized receptor can continue interacting with the G protein, allowing to carry out processes of both signaling and traffic. Some of these signaling processes are involved in some physiological disorders, that from a medical and pharmacological points of view is interesting for antagonist's development which inactivates the receptor, blocking possible effects resulting from this process.



Osteoporosis

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Keywords: osteoporosis, pathogenesis, diagnosis, pharmacotherapy

Osteoporosis is a systemic disease of the skeleton, which is manifested by a decrease in bone mass and a disorder of the bone microarchitecture, and as a result, there is tendency to fractures.

Pathogenesis of osteoporosis

Bone mass and BMD increase rapidly during childhood and adolescence, allowing the longitudinal and radial growth of the bones. During this time, the increase in BMD g / cm² was largely related to bone growth (1). During aging, bone loss is greater in women than in men. During the first years after menopause, there is a rapid loss of bone, mainly of the trabecular section, leading to trabecular perforation and, consequently, loss of the entire trabecula. When the trabecula is lost, the metabolic active bone resorption area decreases and the loss of trabecular bone is slowed down. The hormonal changes occurring in menopause are a major factor in the development of osteoporosis in women. During aging, bone mass density (BMD) decreases and the prevalence of osteoporosis increases. The prevalence of osteoporosis varies depending on whether it is defined by fracture incidence or by low BMD (a T score of -2.5 or less). Osteoporotic fractures are one of the major health problems worldwide, due to associated comorbidities, mortality and costs (2).

Criteria of the World Health Organization for Osteoporosis

- normal bone (T score 1SD (standard deviation)
- osteopenia (-2.5 SD less T less 1 SD)
- osteoporosis (T less than or equal to -2.5 SD);
- severe osteoporosis (T less than or equal to -2.5 SD with fracture information) (3).

Diagnostic examination of osteoporosis

Routine searches

Anamnesis and physical examination

Complete Blood Picture, Sedimentation, C reactive protein, serum Ca, albumin, creatinine, phosphate, alkaline afosfatase and liver transaminase. Functional examination of thyroid gland and determination of bone density by densitometry (DXA). Additional tests may be made, for example, the determination of 25 OH vitamin D, the determination of serum prolactins, scintigraphy of the skeleton, the determination of PTH from the plasma, the excretion of urinary calcium (4).



Pharmacotherapy of osteoporosis

Bisphosphonates (alendronate, ibandronate, risedronate, zoledronate).

Selective estrogen receptor modulators (SERM): raloxifene, bazedoxifene

Parathyroid hormone peptides (PTH)

Strontium ranelate, Denosumab, calcitonin, Hormone replacement therapy

Conclusion

Osteoporosis is a major social and global problem of the world. It is a systemic disease characterized by small bone mass and deterioration of bone tissue microarchitecture. Today in the treatment of osteoporosis, bisphosphonates are "gold standard ". Over the last ten years, they have proven to be safe and effective drugs, especially in the proper way of taking and selecting the patients with the least risk for the reported side effects. Along with these groups of drugs, adequate calcium intake is required - either with food fortified with calcium or calcium preparations in the form of tablets and syrups at a dose of 1000-1200 mg per day. A dose D3 of at least 800 Ij is also defined. Daily. Correction of the dose of supplements is adjusted to the needs and comorbidity of patients. Appropriate physical activity is the most important general measure during the treatment of osteoporosis, but it is often completely ignored by patients.



Organisms Carcinogenic For Humans

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Keywords: Carcinogens, organisms, viruses, IARC and cancer.

Nowadays numerous carcinogens, capable of causing and transmitting cancer in humans, are known. In this regard, the International Agency for Research on Cancer (IARC) periodically develops a list that describes more than 1000 agents, divided into different categories according to their carcinogenic potential. Among them, different agents associated with several groups of organisms that are responsible for more than 15% of cancers worldwide stand out. That is why, these groups are of great relevance when it comes to studying the causes of the appearance of cancer.

In 1911 Peyton Rous discovered the existence of a tumour-transmitting agent, which served as a first step so that, beginning in the 1950s, the ability of some viruses to induce the transformation of healthy cells into tumours began to be discovered. This discovery was a milestone in the research and knowledge of the cellular and molecular mechanisms associated with cancer. After the viruses, numerous bacteria were included and subsequently, carcinogenic organisms of very different nature such as fungi, parasites, plants and protozoa among others have been described. This number continues to rise day by day, thanks to the increase in research in this field, which will undoubtedly lead us to know organisms that we would never have imagined could be carcinogenic agents.

In this work, we will carry out a review of some of the most relevant organisms which have been included by the IARC, as well as concrete examples of their mechanism of action and their individual outstanding aspects.



Characterization of an invertebrate herpes-like virus identified in the cloacal sample of a Neotropical bird

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Keywords: Hepevirus, Invertebrate, Phylogeny, French Guiana

Metagenomics is revolutionizing our knowledge of viruses, reducing our vulnerability to emerging diseases that may have massive health and economic impacts. Research of poorly studied hosts in remote areas is particularly relevant, as it is estimated that over 1.67 million viral species with zoonotic potential are yet to be discovered. In addition, tropical forests are biodiversity hotspots, holding a huge diversity of species from all taxons, where avian species play a crucial role as host and short-distance vectors of viruses. In this study, we carried out the genomic and phylogenetic characterization of a hepe-like virus found in the cloacal sample of a Neotropical bird from the Natural Reserve of Nouragues in French Guiana.

Hepeviruses (family *Hepeviridae*) are non-enveloped viruses, whose genome consists of a positive sense single-stranded linear RNA molecule around 7.200 nt long. Hepeviruses are transmitted via fecal-oral route and are remarkable for its global economic and health interest. High-throughput sequencing techniques of cloacal swabs from birds collected at this remote region, revealed a novel 7.595b hepe-like virus sequence. Preliminary analyses of phylogenetic inference and genomic organization highlight that this virus presents more similarity with a new recently described hepevirus clade of invertebrates than with avian hepeviruses. To conclude, these findings provide important information about interspecific viral transmission and increase our knowledge of viral diversity and evolution.



Case Study: Ecological and Social Approach to the La Pastoría Lagoon Problematic. Oaxaca, México

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Keywords: La Pastoría, Chacahua, Mangrove, Eutrophication, Lagoon.

La Pastoría is an endangered lagoon based in the Lagunas de Chacahua natural park (in Oaxaca, Mexico). The connection with the sea is now closed and the lagoon is affected by eutrophication, massive dead of fish, odor, mangrove degradation and other problems that will be explained in the exposition. We reviewed of bibliography and local information, and made field studies (parametrical studies, danger perception) in order to understand the problem the causes and the consequences of the problem. Also we evaluate: 1. The risk of not making ecosystem conservation and restoration in the zone and 2. If the actual conservation politics on the zone are enough (or if there is another viable institutional way to fix the problem)

We found that most of the ecosystem problem is related with the impact of human activities in the zone, and this problem causes a big impact in the communities because of the lack of food security, lack of economic activities, health problems... Also we found that most of the community sees that the future of the lagoon depends of the aperture of the connection with the sea, but we think it may not be the best solution if it means investing a lot of money without reviewing another way of waste management and lagoon protection.

In conclusion, we expose what we think is the root of the problem and its consequences and the we offer a ideal management plan for the problem, in order to balance the ecological and social risk in one of the first national parks of México.



The Growing Significance of Epigenetics

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Keywords: gene expression, epigenetic mechanisms, epigenetic inheritance, environmental influence

Epigenetics is the study of heritable changes in phenotype that does not involve changes in the underlying DNA sequence. It is a relatively young and unexplored field that looks very promising to researchers. Over the last decade, the interest surrounding epigenetics has rapidly increased. It has enhanced even more as it has become clear that understanding epigenetics will be essential in our near future for expanding the knowledge regarding medicine, evolution, species conservation, cloning, synthetic biology and many more. A number of studies are currently in process, all having the goal of examining the importance of epigenetics and epigenetic mechanisms, that is, the impact that the environment has on our genome. In this presentation, there will be shown several selected studies that will provide us with an insight into the epigenetic mechanisms, and discuss whether it is possible that individual differences can be transmitted from parents to future generations.



Angel Wing Syndrome in *Anser anser*

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Keywords: anatidae, carbohydrates, disorder, Eco-social, engagement.

Nowadays the relationship between animal and human society is still increasing, this situation carries a responsibility to them. A sample of this liability occurs in *anatidae* family that has been introduced in our cities and parks recently, bringing with it some problems of coexistence. One of these problems is the Angel Wing Syndrome, a deformation of the primary wings of flight, caused by the excess of carbohydrates intake that makes flight impossible to them. The main cause is the overfeeding and artificial food, boosted by humans that feed them with bread, chips or popcorn, while their natural diet is based on grass.

Otherwise, leaving apart animal health problems, artificial feeding could carry the next associated problems: disruption animal behaviour like intensive days of foraging looking for bread, being able to attack people; overpopulation crowding out other species... Overfeeding can furthermore lead to destabilize the ecological equilibrium in water ecosystem producing infective disease (increasing the bacteria population) or eutrophication.

Because all of this, we develop this investigation. The purpose of our research is to study a population of Aranjuez geese, trying to figure out why some of the individuals tend to develop the syndrome. We finally conclude the main solution resides in the importance of be committed and educate our people teaching them how to interact in a non-harmful way with the environment.

The show must go on and we are the solution.



Environmental Impact of Meat and Dairy Production Worldwide

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At the moment, we are living in a heavily impacted world, and together science and society have to try to solve global problems which are a threat to biodiversity and to human primary resources. During the last seventy years, changes in lands worldwide have been made to increase the cattle raising industry due to high demand (meat and dairy consumption tripled, even though the last decade experienced the lowest increase) (Allievi *et al.* 2015). As a result, we can see an increase in greenhouse emissions, desertification, pollution of worldwide waters and intensively modified biomes (Evaluación de los Ecosistemas del Milenio 2005). The increase in the amount of field crops globally is directly related with an increase in meat consumption (Godfray *et al.* 2010), not only because the always-growing human population, but also due to the increase per capita of animal protein (Sans & Combrils 2015).

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Meat and dairy production generates higher impacts than vegetable production in different levels (Pimentel & Pimentel 2003): greenhouse gases and consumed energy (5 to 10 times more impact) (Hoolohan *et al.* 2013), use of land (3 to 13 times more land) (Meier *et al.* 2013) and hydric resources, which uses up to 100 times more water (Pimentel & Pimentel, 2003). Maintaining a high meat and dairy production worldwide is unsustainable and opting for diets with less impact-producing products would be better not only for the environment but also good for our health (WHO Technical Report Series).



Creation of the Proximity Labelling MeCP2-TurboID Vectors

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Keywords: Rett Syndrome, MeCP2, R306C, Biotinylation, Proximity-labelling.

Rett syndrome (RTT) is an X-linked autism-spectrum disorder characterised by loss of language skills and motor abilities after the age of 6 - 18 months. Mutations within the gene encoding Methyl-CpG-binding protein 2 (MeCP2) have been shown to cause RTT. An *MeCP2* KO model mice are often used to study the disorder. The second most common RTT causing mutation is the R306C mutation, which disrupts the interactions of MeCP2 with the NCoR-SMRT complex. To better understand the disease, it is necessary to characterise the interaction networks of MeCP2 and investigate abnormalities brought about by this mutation. To do so we propose using the novel proximity-labelling enzyme TurboID. We have created a vector plasmid with TurboID ligated to the C-terminus of *MeCP2*, and through site-directed mutagenesis, we have created a mutated plasmid with the R306C mutation. To verify the correct insertion of the construct and mutation we used sequencing. Microscopy studies show the addition of the TurboID tag and the R306C mutation do not alter the localisation of the protein, suggesting the addition does not change protein function. The addition of exogenous biotin induces measurable levels of biotinylation in the cell samples. We have characterised this *MeCP2*-TurboID construct and shown it works as intended. This method can be used in cell models to probe for new interactions of *MeCP2* in neurones and better understand RTT.



The search of probiotic strains for the treatment of hyperuricemia

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Hyperuricemia, traditionally associated with the development of gout, and recently linked to diabetes mellitus type 2 and cerebrovascular and nephrological diseases, is on the rise worldwide, especially in developed countries (Zhu et al., 2011; Kuwabara, 2016). Uric acid is generated in the body due to the catabolism of purines, and patients with hyperuricemia must control their dietary intake and go under drug treatment to normalize their serum uric acid levels. A search for alternative treatments has begun due to the secondary effects the drugs can have on some people (Sanchez-Niño et al., 2017).

The probiotic potential of 17 strains of *Lactobacillus* spp. and *Bifidobacterium* spp. isolated from human milk for the treatment of hyperuricemia have been evaluated. First, the cellular intake of inosine and guanosine and the production of xanthine, hypoxanthine and guanine after a one hour incubation at 37°C of the 17 strains was determined. The concentration of all purines was carried out using HPLC technique. Once this preliminary screening was carried out, *Lactobacillus plantarum* ZL17 5 and four strains of *Lactobacillus salivarius* (TA143Ma1, V4II90, V7IV1 y ZL 31 32) were selected to carry out further tests. These included the determination of inosine, guanosine and uric acid intake in the presence and absence of glucose at a lower cellular concentration than before. All strains chosen showed higher intake in the presence of glucose. To determine if these purines were transformed inside the cell or merely transported inside, the transformation of these compounds by the intracellular extract of the five strains was quantified. The extracts of *L. plantarum* 17 5 and *L. salivarius* TA143Ma1 y ZL31 32 showed a complete transformation of the inosine and guanosine added, while *L. salivarius* TA143Ma1 and V7IV1 had a similar transformation and intake of uric acid.

Other probiotic properties, such as pH and bile resistance, antibiotic sensibility, antimicrobial activity and biofilm formation kinetics in vitro were also determined. *L. salivarius* TA143Ma1 and V4II90 stood out by having the highest acid and bile resistance, respectively, and the fastest biofilm formation kinetics.



Whole Genome Sequencing And Analysis Of *Listeria Innocua* Isolates From Ruminants Clinical Material

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Keywords: *Listeria innocua*, listeriosis, ruminants, full genome analysis

Listeria is a genus of bacteria that is widely found in the environment and in food. *Listeria innocua* is a Gram-positive environmental bacterium that is related to the pathogenic *Listeria monocytogenes*. *Listeria innocua* is considered a nonpathogenic *Listeria* species. Various clinical syndromes due to *Listeria* species have been described such as sepsis, central nervous system infection and gastroenteritis and more severe invasive disease in immunocompromised patients.

The aim of the work was to characterize *Listeria innocua* isolates from ruminant clinical material to perform full genome analysis using whole genome sequencing technologies. 70 *Listeria innocua* ruminant clinical isolates, collected from 2012 to 2018, DNA was extracted and sequenced using Illumina MiSeq. Whole-genome sequencing confirmed the presence of *Listeria* pathogenicity islands (LIPI) characteristic of *Listeria innocua* species. Genomes were evaluated for *Listeria* spp. presence of virulence factors compared to virulence factors of pathogenic *Listeria monocytogenes*. Full *Listeria* pathogenicity island – 3 gene cluster was identified in five samples. The major *PrfA* regulatory virulence gene cluster was not detected in any of *Listeria innocua* isolates.



Function Of Myoglobin In Cetacean

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Keywords: pigmy sperm whale, myoglobin, skeletal muscle, oxygen storage.

Marine mammals have high myoglobin (Mb) concentrations that increase their oxygen storage capacity and allow them to perform long dives. In this study, we analyze the Mb concentration of different functional muscles, and the muscle oxygen storage in a pigmy sperm whale (*Kogia breviceps*), to test the hypothesis that the Mb is heterogeneously distributed along the body. We also made a bibliographical comparison of the myoglobin concentration between deep-dive animals and animals that stay on the surface. The sampled muscles included: three locomotor muscles (epaxial group, hypaxial group and rectus abdominis), and three non-locomotor muscles (mastohumeral, dorsal scalene, sternohyoid). The results showed a heterogeneous distribution of Mb, with locomotor muscles showing significantly higher Mb concentration than non-locomotor muscles. On the other hand, locomotor muscles stored a greater percentage of oxygen than nonlocomotor muscles due to both a higher myoglobin concentration and a higher muscle mass.



Role of Endothelin 1 in skeletal muscle regeneration processes: Studies in cellular cultures

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Keywords: C2C12, Myogenesis, Fibrosis, ET-1, Sarcopenia, Proliferation.

Endothelial dysfunction due to a rising of ET-1 levels and the sarcopenia characterized by the loss of muscular mass and strength are typical symptoms of aging. Previous results of the investigation team in old mice showed high levels of ET-1, increased muscular fibrosis and a decline in strength. The aim of this work was to study the role of ET-1 in differentiated myoblasts and whether ET-1 was the direct responsible of the physiological and functional changes found in old mice. For this purpose, myoblasts C2C12 were differentiated in the presence or absence of ET-1 during different periods of times. To clarify if ET-1 reduces the muscular regenerative capacity, we study its effect in myogenic (myogenin and myosin heavy chain) and fibrogenic (CTGF, Fibronectin and Collagen-I) differentiation. All proteins were evaluated by Western blot and Immunofluorescence techniques. In addition, proliferation of myoblasts was studied by MTT assay, wound closure and expression of PCNA. The results confirmed that low doses of ET-1 stimulate myogenic differentiation in a similar way as control does whereas the induction with high doses of ET-10nM were always higher. ET-1 induces fibrogenic differentiation compared with control cells, and also proliferation was increased in the presence of ET-1. To sum up, ET-1 induces myoblasts proliferation, and then, increases fibrogenic and myogenic differentiation. Present data suggest that high levels of ET-1 could induce fibrosis in differentiated myoblasts, which could be associated to the strength loss observed in old mice even though ET-1 didn't reduce the regenerative capacity of the muscle.



Monocarboxylate Transporter 8 Deficiency As A Pathophysiological Thyroid Hormone Transport

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Keywords: MCT8-deficiency, blood-brain barrier, brain, thyroid hormones

The high concentration of T3 in peripheral system in children with profound disability are bound to the Allan-Herndon-Dudley syndrome, which is a rare disease linked to the chromosome X due to a deficiency of a thyroid hormone transporter, specifically MCT8 encoded by the gene *Slc16a2*. The scarce presence of thyroid hormone, principally T3, all along the embryonic development involves a deep cognitive deficiency and an intellectual and communicative skills disability. MCT8 is a protein located in the blood-brain barrier which mediates the entrance of T3 through the barrier. Experiments in MCT8-deficient mice showed the absence of neurological characteristics associated to patients with the Allen-Herndon-Dudley syndrome. It is believed it is due to the transporter OATP1C1, which allows the entry of T4 and it is removed of one iodine atom in the astrocytes, becoming in T3. The abundance of this transporter is larger in mice than in primates and human, counteracting the hypothyroidism in the brain. The goal of this review is to approach the understanding of this syndrome throughout different experiments, how to address the physiological barriers and comprehend the pathways to overcome this disease.

Search of new antibiotics in ant-associated fungi

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Keywords: ant · antibiotic · fungi · resistance · ESKAPE

Antibiotic resistance is a worldwide issue, origin of serious health problems and enormous economic costs. Looking for new antibiotic substances active against multidrug-resistant bacteria (ESKAPE) is compulsory if we want to palliate this problem. As an extension of the SWI (Small World Initiative) project, which partly had place in the Complutense University of Madrid, we obtained and analyzed fungi from ants (both larvae and adults) and anthills, for it has been described that in this environment, beneficial microorganisms can be found protecting the ant colony from harmful ones. Being that our aim, samples were collected, including sandhill soil, mature ants, larvae, eggs (*Tapinoma madeirense*, Forel and *Tapinoma nigerrimum*, Nylander) and a negative control. Samples were homogenized obtaining different dilutions which were cultured and, afterwards, different fungi colonies were chosen to be tested for antibiotic substances against ESKAPE-like bacteria (related with ESKAPE ones but safe). All fungi showing antibiotic capacity against ESKAPE-like bacteria were identified at genus level by microscope. Four *Penicillium* sp., one *Trichoderma* sp. and one *Fusarium oxysporum* significantly inhibited ESKAPE-like bacteria, being *Penicillium* genus the best inhibitor; *Bacillus pumilus* the most affected bacteria; and *Enterobacter* sp. showed the hardest growth to inhibit.

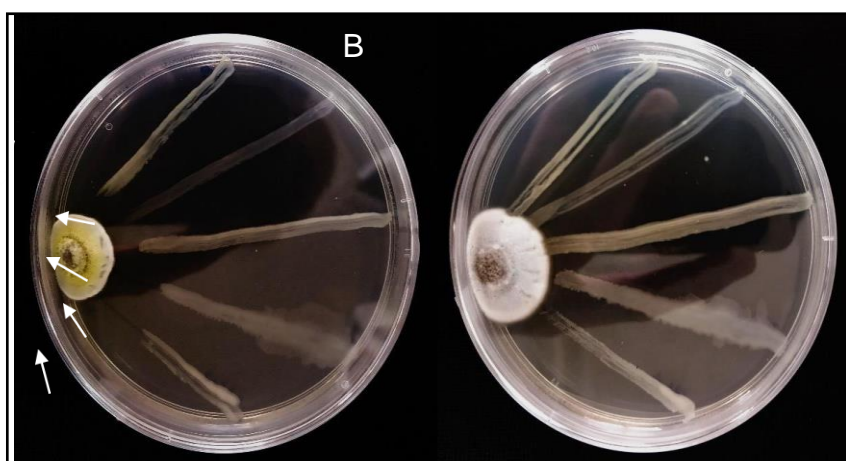


Figure 1 *Penicillium* sp. culture inhibiting 50% of the bacterial species tested against it



Passerine Bird Communities Structure In The Iberian Peninsula: Macroecological and Macroevolutionary Perspective

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Keywords: Birds community structure, passeriformes, biomes, macroecology.

The macroevolutionary history and the current macroecological distribution of species are well related with different spatiotemporal scales. Birds community structure allows the differentiation between biogeographic regions because of their relation with different climatic factors. We have calculated the bioclimatic component (BC) and the biomic specialization component (BSC) with the aim of understanding the relations discussed before at Passeriformes bird communities in the Iberian Peninsula. They were calculated with a macroevolutionary and a macroecological perspective attending to the occupation of biomes. The ecological analysis of BC and BSC has allow us to differentiate both biogeographic regions of the peninsula and to relate this differentiation to summer precipitations and temperatures. From an evolutionary perspective, the eurosiberian communities have an arctotertiary kinship and a Pleistocene Origin. On the other hand, the mediterranean have an arid and semiarid tropical origin. This attends to the geological and paleoclimatic history of the peninsula. Regarding the degree of specialization, the results agree with “the resource-use hypothesis” (Vrba, 1992). This new methodology might be useful in predicting the climate change effects and the evolutionary history and biogeography of species.



Plant Secondary Metabolites As A Model For Drug Development

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Keywords: plant secondary metabolites, drug development, cancer, pharmaceutical industry

Plant secondary metabolites are compounds that are not essential for plant growth and development, but are useful for adjustment and survival of plants in the environment in terms of plant innate immunity, preservation, signalling and defense. They are derived from primary metabolites and can be divided into three groups according to their biosynthetic origin: phenolic compounds, terpenoids and alkaloids. To this day, the number of such compounds is estimated at 200 thousand. Secondary metabolites structural complexity and diversity has ensured them an important role in the pharmaceutical industry. Plant secondary metabolites are used for treatment of various medical conditions such as cancer, neurodegenerative diseases, parasitic diseases with emphasis on malaria, metabolic disorders and glaucoma. These compounds, like vinblastine, can be used directly as drugs in clinical use. Synthetic optimization is often required to increase bioavailability - in that case plant secondary metabolites serve as prototypes for the synthesis of high number of structural analogs that can be used in drug development. A good example for such use is nitisinone. Also, plant secondary metabolites can serve as pharmacological and biochemical probes to help explain the mechanisms underlying human diseases. Even though drugs derived from secondary metabolites have revolutionized medicine, only 10% of all known compounds have been investigated for their pharmaceutical properties, which certainly leaves room for further investigation.



Detection Of *Salmonella* spp. Presence In Food and Samples From Primary Steps Of Food Production Chain Using Microbiological And Molecular Biology Methods

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Keywords: *Salmonella* spp., real time PCR, standard method ISO 6579-1: 2017, food, food production chain.

The aim of the work was to compare presence of *Salmonella* spp. in foodborne products and primary production stage products with commercial real time PCR kit and standard method in order to assess whether the molecular biology method is equally sensitive as the standard method. This investigation was carried out during the period from September 2017 to May 2018. Real time PCR based molecular biology method (*mericon Salmonella* spp. kit, Qiagen) and the ISO standard method ISO 6579-1: 2017 “Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of *Salmonella* - Part 1: Detection of *Salmonella* spp.” were used. In total 199 samples were tested, from those 127 were food samples and 72 were samples from primary steps of food production chain. *Salmonella* presence was detected in both – food samples and samples from primary step of food production. Results were consistent in 96.3 % of positive samples and 99.42 % of negative and suspicious samples.

The main conclusion is that since it was not possible to obtain 100 % consistent results with both methods the real time PCR method can be used as additional test or fast screening test for large number of samples in problem situations at food production chain.



Cancer Cell Metabolism

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Keywords: cancer, metabolism, selective drugs, cancer stem cells

The reprogramming of energy metabolism is an emerging hallmark of cancer. Uncontrolled cell division demands increases in fuel and biosynthetic precursors that is obtained by adjusting energy metabolism. After switching to the glycolytic phenotype, cancer cell preferentially fulfills its bioenergetics needs by converting glucose into pyruvate. In contrast, in healthy cells about 90% of ATP molecules are derived from oxidative phosphorylation. Understanding the biological differences between cancer and healthy cells could be essential for the design and development of selective drugs. Therapeutic selectivity, i.e., targeting cancer cells without toxic effect on healthy cells is one of the most desired goals in oncology. Lack of today's treatment options is also a high probability of the disease relapse due to the resistance of cancer stem cells. Further research into the metabolism of these cells may result in the development of effective metabolic therapies to address this problem.



Engineering Bacterial Model of Amyloidosis

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Keywords: *Prionoids, RepA-WH1, Hsp70*

Protein amyloids are central to human neurodegenerative diseases. Nevertheless, the mechanisms underlying amyloid cytotoxicity are still not fully defined. In the case of bacteria, natural amyloid proteins are naturally synthesized and secreted to the media. However, none of these amyloids have been found to cause a natural proteinopathy.

The WH1 domain from the bacterial initiator protein RepA can be engineered in order to assemble into two types of amyloid aggregates upon binding to specific DNA sequences: globular particles that inhibit cell division, or a single elongated aggregate, mildly detrimental for cell growth. These two conformations are mutually exclusive and interconvertible thanks to bacterial Hsp70 chaperone DnaK. The seeding of fibers start at bacterial nucleoid, and become detrimental for the cell by building pores in the membrane, generating ROS and by co-aggregating with factors implied in the stress response. Furthermore, RepA behaves like a “prionoid”, which means that it is not infectious, being only *vertically* transmissible from mother to daughter cells. All the aforementioned facts were revealed thanks to confocal, electron and fluorescence microscope techniques, bacterial cell culturing and protein isolation and structural analysis.

By these means, RepA-WH1 offers a unique window to survey the minimal landscape of human amyloid proteinopathies, a current threat mainly found within the constantly increasing elderly part of the population.



Monoclonal Antibodies Applied In Treatment For Hematological Malignancies

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Keywords: monoclonal antibodies

Monoclonal antibodies are antibodies with monovalent affinity (they bind to the same epitope) produced by clones of a unique parent B-cell. Discovery of hybridoma technology made it possible to produce murine monoclonal antibodies specific to known antigens and with further advances in genetic engineering and recombinant DNA technology it was possible to produce chimeric, humanized and completely human antibodies. Humanization of the antibody has improved its efficacy and prolonged its half-life. In medicine they are used as a form of immunotherapy for autoimmune diseases, infections and tumors. Monoclonal antibodies are a novelty in treatment of hematological malignancies, tumors of myeloid and lymphoid cell lineages, alongside common therapies as chemotherapy, radiotherapy and transplantation of hematopoietic stem cells. Due to their specificity for tumor-associated antigens and the effect they have on the tumor cells (activation of ADCC, CDC, induction of apoptosis or blocking ligand binding), they are a great option in treatment of malignancies. There are two types of antigens they recognize: lineage specific antigens (LSA) that are present at different differentiation steps of a certain cell lineage, and non-lineage specific antigens (NLSA) that aren't restricted to a single cell lineage. The first approved monoclonal antibody was rituximab, an anti-LSA antibody targeting CD20, which has shown to be effective in treating some B-cell malignancies. Since then, many monoclonal antibodies have been approved by the FDA or are being tested in clinical trials.



Carbapenem Resistance In Waste Water From Ghana

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INTRODUCTION. Antimicrobial resistance has become a major problem worldwide, particularly in developing countries where data and health control measures are scarce. Carbapenemases are especially important, since carbapenems are last resort antibiotics against gram negative pathogens. The role of the environment is crucial in the spread of mobile genetic elements carrying these resistance mechanisms.

MATERIALS AND METHODS. Waste water samples were obtained from 3 different hospitals (before and after the hospital effluent) located in Tamale, Ghana. Selection was carried out in MacConkey agar plates supplemented with imipenem (8 mg/L). Bacterial identification was accomplished by MALDI-TOF MS and 16S rRNA gene sequencing. Resistance to carbapenems (imipenem, meropenem, ertapenem and doripenem) was determined by broth microdilution method (from 0.0625 mg/L to 8 mg/L) according to EUCAST guidelines. Screening for carbapenemases was performed by PCR (*bla*_{VIM}, *bla*_{IMP}, *bla*_{KPC}, *bla*_{NDM}, *bla*_{CTX-M}, *bla*_{OXA-48} and *bla*_{GES}). Nanopore sequencing (MinION) of selected isolates was developed with 1D Native barcoding genomic DNA (EXP-NBD104 and SQK-LSK109).

RESULTS. Twenty-six isolates resistant to imipenem were obtained from waste water. Different *Pseudomonas* species and members of *Enterobacteriaceae* family and intrinsically resistant *Stenotrophomonas maltophilia* were identified. Isolates showed high MICs values for tested carbapenems. Carbapenemase screening was positive for *bla*_{NDM-1}, *bla*_{CTX-M} and *bla*_{OXA-48} in one *E. coli* and two *Citrobacter* spp. isolates. Genomic analysis revealed the presence of *bla*_{VIM-5} and *bla*_{CARB-4} in *Pseudomonas* in all *Pseudomonas* isolates, *bla*_{CTX-M-15}, *bla*_{TEM-1B}, *bla*_{NDM-1} and *bla*_{CMY-98} in *Citrobacter* in the two *Citrobacter* isolates and *bla*_{NDM-1}, *bla*_{OXA-48}, *bla*_{TEM-1B} and *bla*_{CMY-2} in *E. coli* in the *E. coli* isolate.

CONCLUSIONS. Our findings uncovered the high presence of multiple carbapenemase genes in different bacteria in waste water from Ghana, especially in hospital niches, but also circulating in the canalizations of the region. Further studies will characterize the mobile genetic elements involved in the dissemination of these concerning resistance determinants.



Importance Of *irc7* Gene in the Growth of *Saccharomyces cerevisiae* Wine Strains

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Keywords: *Saccharomyces cerevisiae*, wine, yeast, growth, implantation

Wine is a complex mix of chemistry, biology and culture where microorganisms play a critical role. *Saccharomyces cerevisiae* is the yeast that carry out alcoholic fermentation, and that it is responsible of varietal thiol compounds release such as 4-methyl-4-sulfanylpentan-2-one (4-MSP), 3-sulfanylhhexyl acetate (3-SHA) and 3-sulfanylhhexan-1-ol (3-SH). Specifically, *IRC7* gene has been studied because it encodes a protein *irc7p* that exerts cysteine- β -lyase enzymatic activity and is responsible for thiol varietal aroma release. A previous described deletion in *IRC7* produces a less active enzyme *irc7p* that reduces thiol release with direct consequences on wine organoleptic properties. Previous studies have shown that there is a lower presence of homozygous for the whole *IRC7* gene strains among the isolates from enological environments with respect to strains homozygous for the deleted gene. One of the objectives of this work has been to demonstrate that the aforementioned lower presence is due to the fact that the *S. cerevisiae* strains homozygous for the complete gene *IRC7* show reduced growth in different culture media. Accordingly, experiments were carried out to determine the behaviour of strains of *S. cerevisiae* belonging to the three genotypes of *IRC7* in different mediums and conditions. In order to verify this hypothesis, competition fermentations were carried out in mixed culture between homozygous strains for the deleted *IRC7* gene and homozygous for the non-deleted gene, and the preferential development of the strains at the end of the fermentations was observed. The data corroborated our hypothesis that the homozygous strains for the whole gene developed slowly, presenting a lower growth rate and a greater lag phase in an environment similar to wine, showing it difficulties to develop in wine fermentations.



Intermittent Fasting: a Potential Non-Pharmacological Weapon for The Improvement Of Human Health

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The objective is to summarize the evidence on the health benefits of intermittent fasting. Intermittent fasting is a pattern of eating that appear to promote weight loss and may improve metabolic health. Several lines of evidence also support the hypothesis that eating patterns that reduce or eliminate night-time eating and prolong nightly fasting intervals may result in sustained improvements in human health. Intermittent fasting regimens are hypothesized to influence metabolic regulation via effects on circadian biology, the gut microbiome, and modifiable lifestyle behaviours, such as sleep. If proven to be efficacious, these eating regimens offer promising nonpharmacological approaches to improving health at the population level, with multiple public health benefits.



Why Is The Colour Blue So Rare In Nature?

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Keywords: blue; pigment; butterfly; interference.

This presentation explores why the colour blue is the rarest colour among the animals and how they get their blue colour. When the colour blue appears in nature it is related to other reasons than pigment. In particular I will talk about how it works for the blue Morpho butterfly. Researchers show that arrangement of the wings can cause the sunlight to bend at the correct angle, which causes the creation of the blue colour. This process is called interference of light. According to the scientists this adaption of developing blue colour, provides an easier way for these animals to change the shapes of their bodies in a microscopic way during the evolution. Further studies are needed to explain why the colour blue is found in structures rather than in pigments.



Communication Between Viruses Guides Lysis–Lysogeny Decisions

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Keywords: viruses, phage, communication molecules, genome

Viruses are small pathogenic organisms that cannot guide replication and reproduction by themselves. However, once they infect a susceptible cell, viruses can direct the cell machinery to produce more viruses. Such viruses, after injecting their genome into bacterial host cell, have two life-cycle options. The phage can either destroy its bacterial host by entering the lytic developmental pathway, and in this process release numerous phage particles, or It can enter the lysogeny cycle in which It will integrate Its genome into the host genome. For many years the mechanism of viral infection had been unknown and intercellular communication between viruses had not been noticed. The research published in Nature by Erez reveals that viruses (phages) of the SPbeta group use a small six amino-acid-long peptides in order to communicate and coordinate lysis–lysogeny decisions. Decision about the development of the progeny phages depends on the prevailing conditions, which means that phage will choose to enter one of the mentioned cycles by measuring the concentration of the previously produced peptide. The results of this research show that different phages encode different versions of this communication molecule which shows phage-specific peptide communication code.



Co-delivery of Simvastatin & 5-FU via Long-Circulating Liposomes Increases Production of Anti-inflammatory Th1 Cell Proteins in Murine Colon Carcinoma Microenvironment

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Keywords: inflammation, T helper cells, long-circulating liposomes, combined therapy, cancer.

Tumor tissue-infiltrated T helper cells are vital for the fate of cancer cells as they produce anti-inflammatory proteins (by Th1 cells) as well as pro-inflammatory proteins (by Th2 cells). Therefore, the prevalence of Th1 cell protein production over Th2 cell protein expression might be an indication for an anti-neoplastic phenotype of tumor microenvironment (TME). To this end, we investigated whether a combined tumor-targeted therapy based on the simultaneous administration of statin-simvastatin (SIM) and cytotoxic drug-5-fluorouracil (5-FU) incorporated in long-circulating liposomes (LCL) might have the ability to create an unfavorable TME for tumor development. Therefore, C26 colon-carcinoma-bearing mice intravenously received the combined liposomal therapy, as well as the combined administration of the free drugs. Our data demonstrated strong anti-tumor activity of the tumor-targeted therapy while free administration of SIM and 5-FU did not exert any effects on tumor growth. Moreover, to assess whether the simultaneous administration of SIM and 5-FU in LCL could create an anti-tumor phenotype of the TME, Enzyme-linked immunosorbent assay (ELISA) was performed to determine the tumor tissue levels of inflammatory proteins produced by Th1 and Th2 cells. The expression of IL-2, IL-12 and IFN- γ - antiinflammatory proteins were compared to the expression of IL-6 pro-inflammatory protein in the treated groups versus control group (untreated tumor-bearing mice). Our data showed that the expression of antiinflammatory proteins in both treated groups (with encapsulated or free form drugs) was higher than their levels in the control group. Thus, our findings suggest that the tested combined therapy might create an anti-inflammatory TME, which obstructs tumor growth.



Investigation of Kalamon and Manaki Microbiota Using Conventional and Metagenomics Approaches

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Keywords: Kalamon olives, Manaki olives, Greek style fermentation, Spanish style fermentation, metagenomic analysis

Olive is a perennial Mediterranean crop producing two main products, table olives and olive oil. Table olives are considered as the most economically important fermented vegetable in the western world. Between 1990/91 and 2017/18, world production of table olives has soared from 950.000 to 2.751.000 tons, with 865.000 tons produced in the EU, with Greece placed second after Spain. The aim of this study was the detection of microbiota during the fermentation of two Greek olive cultivars, namely Kalamon and Manaki, using classical microbiological analysis and amplicon-based metagenomics approaches. Kalamon and Manaki olives were treated according to the Greek style fermentation, while the latter one was also fermented according to the Spanish style. Brine and olive samples were initially subjected to classical microbiological analysis using selective growth media for the detection of lactic acid bacteria (LAB), Enterobacteriaceae, Pseudomonadaceae, yeasts and Salmonella. LAB and yeast isolates at specific time points during the fermentation process were grouped using the genotyping technique of rep-PCR. Afterwards, representative isolates from each group were identified at the species level by sequencing the 16S rRNA gene and ITS DNA region of LAB and yeasts, respectively. Furthermore, total DNA was extracted from brine and olive samples at the same time points and amplicon-based metagenomic analysis was used to evaluate the bacterial and fungal diversity. Using culture-dependent approaches, only few LAB and yeast species were identified, while the metagenomics analysis revealed a vast diversity of bacterial and yeast genera. Overall, the combination of both approaches provides fundamental insights into the microbiota of table olives



The Regulatory Role Of ATM And DNAPK On P53 Non-Sequence Specific DNA Binding Upon DSBs Induction

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Keywords: DSB, ATM, DNAPK p53, RNAPII

Various exogenous and endogenous factors lead to DNA Double-Strand Breaks (DSBs) which are the most deleterious damages for the cells since they can result in chromosomal rearrangements and aberrations. In this respect, eukaryotic cells have developed the DNA Damage Response (DDR), to maintain the genome integrity and prevent tumor formation. Three main kinases are involved in this process: ATM, ATR and DNA-PK which all have potential role in the proper coordination of P53 protein. However, little evidence has been known about factors involved in the regulation of P53 non-sequence specific DNA binding. Our recent data have supported the interaction between p53 and RNAPII suggesting a role of P53 in RNAPII eviction from the damaged sites. In this project, our aim is to characterize the role of DNAPK and ATM in non-sequence specific p53 binding at RNAPII- transcribed gene regions upon neocarzinostatin (NCS) -induced DSBs as well as to identify interaction partners of P53. For preliminary experiments, we set the appropriate NCS concentration on U2OS cells and then we applied ATM and DNAPK inhibitors as well. By this experiment, we were able to verify that ATM is the main activator kinase of p53. In addition, our results indicate that both p53 and the elongating RNAPII are accumulated upon DNAPK inhibition suggesting the necessity of DNAPK in the repair process. By this project, we will gain more insight in the regulation of DDR processes and it might be able to provide a development in tumor therapy and diagnostics.



Endophytic organisms: A brief overview

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Keywords: Endophytic, fungi, bacteria, antibiotics, metabolites

Endophytic organisms are becoming ever more popular in the scientific community. The secondary metabolites they produce can have a variety of uses, including antibiotics and biocontrol agents. Although they have been brought into spotlight over the last ten years, not so many young scientists know what they are and what use they can have. In general, endophytes are microorganisms that live inside plants without causing disease, but this is called into question. In this presentation you will be informed about the basics of endophytes including their taxonomy, their use by the plant it coexists with, as well as the applications they can have in the scientific research



The Role Of Stem Cells Extracellular Vesicles In Kidney Regeneration

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Keywords: kidney; stem cells; extracellular vesicles; renal regeneration

Abstract: Given its complexity, metabolic activity and excretory functions, the kidney is particularly susceptible to acute ischemic and toxin-mediated injury. Nowadays, there is an increasing interest in newer therapies that are based on cellular sources of kidney regeneration, and among them we find stem cell-based therapy. In particular, stem cell extracellular vesicles (EVs) appear as a new promising cell-free therapy for acute and chronic renal diseases. EVs contain many active molecules such as proteins and RNA species that act on target cells through different mechanism, stimulating proliferation and angiogenesis, and reducing apoptosis and inflammation. Here we discuss the role of stem cells EVs in kidney regeneration, summarizing their applications.



Characterization of the murine and human oligodendrocyte precursor cells in white matter

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Keywords: Olig2, DAB, transmission electron microscopy, ultrastructure.

Introduction. The nervous system oversees the processing of stimuli and the response to these. It is constituted of the central and the peripheral nervous system. The first harbors oligodendrocytes, which are in charge of generating the myelin sheaths that wrap around the axons of neurons. The myelin sheaths allow the rapid transport of the electric stimuli. It is important to study the origin, development and replacement of oligodendrocytes in order to develop new therapies for demyelinating diseases, such as multiple sclerosis. This is an autoimmune demyelinating disease that affects especially young people, being women more often affected than men. We have focused our study in the oligodendrocyte precursor cells (OPCs), from which oligodendrocytes are generated. Although many characteristics from oligodendrocytes have already been thoroughly described, very little is known about their precursor cells. The aim has been to characterize the ultrastructure and distribution of the white matter OPCs in human and mice. **Materials and methods.** CD1 mice (p7, p15 and 4-month-old) brains and human (adults and children) tissue underwent DAB immunostaining and immune-gold immunostaining with anti-Olig2. The immune-gold samples were observed through transmission electron microscopy. **Results.** The DAB immunostainings show that OPCs are located, mainly, in the corpus callosum and in other white matter areas. OPCs have little and electron-lucent cytoplasm, nucleus with chromatin lumps, dilated and short rough endoplasmic reticulum, and little mitochondria. **Discussion.** Mice and human OPCs were different from each other. While mice OPCs were more heterogeneous, human OPCs were seen to be more homogeneous. Murine OPCs had different morphologies with nucleus that were not all rounded. However, all human OPCs had a rounded nucleus and more regular rounded shape. Knowing more of the oligodendrocyte precursor cells can aid in the further development of new therapies for multiple sclerosis and other demyelinating diseases.



Antimicrobial Resistance (AMR) in the 21st century: 16S rRNA methyltransferases and its implications for Public Health

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Keywords: Antibiotic resistance, 16S rRNA Methyltransferases, Plazomicin

Antimicrobial resistance represents one of the most serious threats to global health in the 21st century. This is due to the appearance and dissemination of new resistance mechanisms by bacteria and to the limited discovery of new molecules with antimicrobial activity. Aminoglycosides are an important group of antibiotics used for the treatment of infections produced by pathogenic Gram-negative bacteria, both in human and veterinary medicine. However, there are several mechanisms that confer resistance to aminoglycosides. Among them, the 16S rRNA methyltransferases are the most relevant. These enzymes were discovered in 2003 and they act adding a methyl group in the ribosome, which hinders the binding of the antibiotic to its target, the 30S ribosomal subunit. This target-modification mechanism confers resistance to all clinically used aminoglycosides, constituting a great threat to Public Health. Recently, The Food and Drug Administration approved a new antibiotic, plazomicin, for the treatment of complicated urinary tract infections in adults. Therefore, the main objective of this work is to accurately investigate the repercussion that this resistance mechanism entails in the next-generation aminoglycosides, like plazomicin. We amplified the different genes coding for these methyltransferases by PCR and its close genetic environment and, using molecular cloning techniques, we created a library of plasmids containing all the known variants of such methyltransferases. Subsequently, these plasmids were transformed in *E.coli* DH5 α strain and the α strain and the Minimal Inhibitory Concentration was determined to analyze the resistance profile that these enzymes confer to plazomicin. We observed that the 16S rRNA methyltransferases confer high levels of resistance to plazomicin, as well as other aminoglycosides. This work is the first study that has tested the impact of ten methyltransferases on plazomicin. This library of methylases will be useful for predictive medicine and will allow the optimization of the use of plazomicin and, therefore, longer preserving its efficacy.



POSTER PRESENTATION LIST

Marek's Disease in Spain: Diagnosis and Future Perspectives

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Keywords: Marek's disease, Diagnosis, Herpesvirus, Spain, Virulence

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Presence of Endogenous Sequences Related to Avian Leukosis Virus (ALV) in Exotic *Gallus*

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Keywords: endogenous retroviruses, exotic chickens, Asian breeds, South American breed.



Angel Wing Syndrome in *Anser anser*

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Keywords: anatidae, carbohydrates, disorder, ecosocial, engagement.

Fungi and Orchids: An essential endophytic relationship

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Keywords: Endophytic Fungi, Orchids, Symbiosis

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Creation of the Proximity Labelling MeCP2-TurboID Vectors

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Keywords: Rett Syndrome, MeCP2, R306C, Biotinylation, Proximity-labelling.



Analysis Of The Effect Of The Environmental Enrichment In The Proliferation Of Neural Stem Cells In The Adult Mouse Hippocampus

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Keywords: Neurogenesis, Hippocampus, Sox5, Mouse, Environmental enrichment

Role of Uremic Toxins in the Activations of Inflammatory Monocytes in Chronic Kidney Disease (ckd).

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Keywords: monocyte, atherosclerosis, uremic toxins, apoptosis, reactive oxygen species.

Ficolours

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Keywords: red algae, mucilages, bioactives, industry.



Studies on the Regulation of the Expression of Genes Involved in the Synthesis of Vitamin B2 in a Potentially Probiotic Strain of *Lactobacillus plantarum*

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Keywords: riboswitch, riboflavin, lactic acid bacteria, rib operon regulation, *Lactobacillus plantarum*

Phenotypic Plasticity of Life History Traits in Seed Beetle (*Acanthoscelides obtectus*) During Host Shift

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Keywords: phenotypic plasticity, host shift, life history traits, seed beetle, *Acanthoscelides obtectus*



14 Days Comparative Study Of Embryonic Development *In ovo* And *Ex ovo* At *Gallus domesticus*

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Inhibitor activity of yeast strains against mycotoxigenic fungi

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Cytochemical characterization of granular leukocyte in four cyprinid species

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How ABA Pretreatment Affects Morphogenesis And Pigment Contents Of Bryo-halophyte *Henediella heimii* During Salt Stress?

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Keywords: *H. heimii*; ABA; Pigments; NaCl;

The potential of commercially available titanium dioxide nanoparticles to influence the rate of human lung cell proliferation

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Keywords: nanoparticles; titanium dioxide; human lung cells; cell proliferation

Understanding The Role Of Ush During Drosophila Head And Eye Formation

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Keywords: Drosophila, Ush, UAS-GAL4, eye-antennal disc.



Effect of 1,8-cineole on *Pseudomonas aeruginosa* 15442 Virulence Factors

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Keywords: 1,8-cineole, *Pseudomonas aeruginosa*, virulence factors, biofilm, bacterial motility

Fighting Immunogenicity in Cancer

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Keywords: recombinant immunotoxin, immunogenicity, deimmunization and PE38 toxin.

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Organisms Carcinogenic For Humans

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Keywords: Carcinogens, organisms, viruses, IARC and cancer.



Pre-thalamic region study in *Xenopus laevis* Based on the distribution of various transcription factors and neuronal markers.

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Keywords: prethalamus, immunohistochemistry, marking, development, embryos

Genomic characterization of a novel reovirus detected in a cloacal sample of a Neotropical bird in a remote area

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Keywords: French Guiana, Genomic characterization, Metagenomics, Neotropical bird, Reovirus



Treatment with Crocin Attenuates Metabolic Disturbances in STZ-induced Diabetic Rats

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Keywords: crocin; STZ-diabetes; metabolic profile; myocardial metabolism

Molecular determinism of MRSA mechanisms from clinical isolated Staphylococcus aureus

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Search of new antibiotics in ant-associated fungi

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Endophytic fungi as biocontrol agents for fusarium wilt

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Monocarboxylate Transporter 8 Deficiency as A Pathophysiological Thyroid Hormone Transport

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Chronic low-dose exposure to bisphenol A affects endothelial function in human vascular endothelial cell line EA.hy926

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Keywords: Bisphenol A, vascular cells, endothelial dysfunction, atherosclerosis

Importance of Microscopical Lung Cell Analysis

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Keywords: Lung cells, microscopical technologies, history, analysis



Effect Of Parasite-host Interactions On The Distribution Of Bird Species Within Their Thermal Range.

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Behavioural Analysis of C57BL/6 Mice During Training Assays For Visually Guided Experiments

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Investigating the role of alpha-synuclein in synaptic vesicle release using multi-colour dSTORM

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pH Homeostasis In Yeast

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Proanthocyanidins, a class of dietary polyphenols: assessment in feces as potential intake biomarker

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Rate of localisation of N-terminal domain of CIZ1 protein to an X chromosome in mouse fibroblast cell nuclei and its association with DNA modification marks associated with X chromosome inactivation - H2AK119ub1 and H3K27me3.

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The Role Of Iron Homeostasis In Neurodegenerative Diseases

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WORKSHOPS

β -Thalassemia And Sickle Cell Anemia

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Keywords: Thalassemia, analysis, Mediterranean disease, iron deficiency, sickle cells.

I come from an Mediterranean country called Albania. In my country, approximately 7% of the population carries the gene for β -thalassemia but there are many who suffers with this disease.

My country is not very rich and fully developed and that is the reason why I am talking in this workshop for thalassemia. My goal is to raise awareness among population for this pathology and to identify carriers for the final goal: preventing and not allowing new births with thalassemia. The realization of this topic has been accomplished at Intermedica laboratory in Tirana. In this study are involved those patients who have low levels of hemoglobin (A, F, A2) and MCV (mean corpuscular volume), MCH (mean corpuscular Hb). The analysis of complete blood was made using the Sysmex XS-1000i device and for electrophoresis was used Sebia minicap (capillary electrophoresis).

In conclusion, this workshop will be interactive with case studies and group discussions. Attenders will identify issues and participate in group debates to help them understand more the topic.



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