Dear EBPS members,

As I am writing the introduction to the EBPS newsletter for the last time in my capacity as EBPS president, I realize that I may have been overlooking a substantial group of people in my address. That is, although this letter deals with EBPS matters, and is e-mailed to the members of EBPS, it is of course meant to be directed at everyone – not just members – with an interest in EBPS, be it by becoming a member or by taking part in one of our activities. So, a warm welcome to everyone!

With regard to EBPS activities, this newsletter is for the most part about the forthcoming biennial meeting of our society, a two-yearly highlight. Rudy Schreiber and the members of the Local Organizing Committee have managed to organize a virtual meeting with a most fascinating program – which would of course not have materialized without the input and effort of the members who submitted symposium proposals. I would especially like to compliment the Local Organizing Committee for their flexibility, as it has been unsure whether the meeting would be in person, virtual, or perhaps a hybrid of both. Although it seems as if we are starting to see the end of many Covid-19 restrictions, organizing the meeting as a virtual platform appeared to be the most sensible way forward. Therefore, a big thank you to everyone who has been involved in the organization of the meeting!

You will find an overview of the program of the meeting in this newsletter, as well as a photo gallery of some of the speakers at the meeting. In addition, this newsletter features a journal club article about a recent paper in Psychopharmacology, our society journal. In this paper, Gabriel et al. introduce a effort vs. risk task in rats, and demonstrate that efficient performance in this task involves dopaminergic neurotransmission.

It sometimes feels like yesterday that we saw each other at the previous EBPS biennial meeting in Braga. Indeed, the two years of my presidency have flown by. Particularly as a result of the Covid-19 pandemic, these have been turbulent and challenging times for most of us. For EBPS, this meant that the workshop that was originally planned for July 2020 took place as a virtual event last March, and that the biennial meeting in July will be a virtual event. Despite the fact that these EBPS activities did not go as originally planned, and the times required quite a bit of flexibility and improvisation skills from all of us, I have surely enjoyed these two years. Clearly, being EBPS president is not a solo activity. To me, it felt like a team effort, and at this point I would like to thank the members of the EBPS Executive Committee – John Cryan, Yavin Shaham, Shelly Flagel, Mohammed Shoaib, Nuno Sousa, Jane Foster, Rudy Schreiber, Christelle Baunez and Anand Gururajan – for the pleasant and productive collaboration. EBPS owes a great deal to you! At the biennial meeting, I will hand the EBPS presidency over into the capable hands of Yavin Shaham. I wish him the best of luck, and I have no doubt that he will do a wonderful job.

For now, I wish you happy reading, and I hope to see many of you – even if it is virtual – at the biennial meeting in July!

With my best wishes,

Louk Vanderschuren
Outgoing EBPS President
Utrecht University
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European Behavioural Pharmacology Society
Biennial Meeting, 13-16 July 2021

Full program

DAY 1 (July 13th)

14h45 -15h15 Opening Lecture
Resurrecting psychedelic medicine through brain science.
Speaker: David Nutt (UK)

Parallel Symposium Session 1: 15h20 - 16h40
Neurocircuitry of traumatic stress and aversive learning; lessons learned from neuronal recordings to circuit manipulation.
Chair/Speaker - Rachel Moloney (Ireland).
Speakers: Anna Beyeler (France), Tom Kash (USA), Stephen Maren (USA)

New developments in alcohol use disorder research and drug development.
Chair/Speaker - Andrew Lawrence (Australia).
Speakers: Cody Siciliano (USA), Estelle Barbier (Sweden), Leigh Walker (Australia)

The endocannabinoid system, neurodevelopment and autism
Chair/Speaker - Michelle Roche (Ireland).
Speakers: Antonia Manduca (Italy), Erica Zamberletti (Italy), Eva Marco (Spain)

Parallel Symposium Session 2: 16h45 - 18h05
Stress effects on neural coding of threat across timescales.
Chair/Speaker - Alfred Kaye (USA).
Speakers: Wei-li Chang (USA), Cornelius Gross (Italy), Bianca A Silva (Switzerland)

Chair - Silvano De Pirro (Sweden) & Marco Venniro (USA)
Speakers: Ingrid Reverte (Italy), Laurence Hunt (UK), Guro Leseth (Norway), Margaret Haney (USA)

Neurobiological correlates and pharmacotherapeutic implications of the glucagon-like peptide-1 (GLP-1) system: An emerging target in neuropsychiatry.
Chair/Speaker - Mehdi Farokhnia (USA)
Speakers: Sriparna Ghosal (Switzerland), Rodrigo Mansur (Canada), Elizabeth Rhea (USA)

18h10 - 19h05 Poster Session

19h10 - 20h00 Lecture
Adolescent brain development: A window of opportunity for social-affective engagement.
Speaker: Eveline Crone (The Netherlands)

NB: All timing shown above are in CEST. Symposia will be held as parallel sessions.

DAY 2 (July 14th)

14h00 -14h30 Lecture
Cognitive and neurobiological mechanisms for self-control failure in psychiatric illness.
Speaker: Joshua Buckholz (USA)

Parallel Symposium Session 1: 14h35 - 15h55
Determining the role of habit in substance use disorders.
Chair/Speaker - Youna Vandaele (Switzerland).
Speakers: Christina Gremel (USA), Stephanie Groman (USA), Lee Hogarth (UK)

Computational neuroethology.
Chair - Robert S Datta (USA).
Speakers: Mackenzie Mathis (Switzerland), Faith M Yanik (Switzerland), Christopher Harvey (USA), Ami Citri (Israel)

Susceptibility to false memories following cannabis and MDMA: clinical and forensic implications.
Chair/Speaker - Lilian Kloof & Jan Ramaekers (The Netherlands)
Speakers: Manoj Doss (USA), Rachel Lees (UK), Sagnik Bhattacharyya (UK)

Parallel Symposium Session 2: 16h10 - 17h30
The pharmacokinetic determinants of substance use disorder.
Chair/Speaker - Daniele Caprioli (Italy)
Speakers: Susan Ferguson (USA), David Epstein (USA), Florence Allain (Canada)

VTA glutamatergic neurons: often ignored but key players in the fields of innate behavior and psychopathology.
Chair/Speaker - Marisela Morales & Flavia Barbano (USA)
Speakers: William Wisden (UK), Flavia Barbano (USA), Ryan Drenan (USA), Matthew Anderson (USA)

An emerging role for neurofunctional domain approaches in modern CNS drug discovery.
Chair - Rudy Schreiber (The Netherlands).
Speakers: Sara Morris (USA), Laura Kwako (USA), Ulrike Schmidt (The Netherlands), Jaymin Upadhyay (USA)

17h35 - 18h05 Lecture
Acetylcholine signaling in the basolateral amygdala during reward learning.
Speaker: Marina Picciotto (USA)

18h10 - 19h05 Poster Session

19h10 - 20h00 Introduction to the ALBA Network

NB: All timing shown above are in CEST. Symposia will be held as parallel sessions.

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Full program
DAY 3 (July 15th)

13h15 - 13h45 Lecture - Young Scientist Award
(Not) lost in translation: the endocannabinoid system as a novel target for stress-related disorders.
Speaker: Leah Mayo (Sweden)

13h45 - 14h30 Lecture - Distinguished Achievement Award
Neuropharmacology of addictive drugs: Beyond pharmacodynamics and pharmacokinetics.
Speaker: Aldo Badiani (Italy)

Parallel Symposium Session 1: 14h35 - 15h55
Emotions in alcohol use and misuse – evidence from behavioural, eye tracking, and neuroimaging research.
Chair/Spokes - Theodora Duka (UK) & Aleksandra Herman (Poland)
Speakers: Séverine Lannoy (USA), Arthur Pabst (Belgium), Kyriaki Nikolau (UK)

Propagating motivational value across the memory network.
Chair/Spokes - Mihaela Iordanova (Canada).
Speakers: Nathan Holmes (Australia), Evan Hart (USA), Arne Busquets-Garcia (Spain)

Compulsivity and neurobehavioural plasticity.
Chair/Spokes - Margarita Moreno (Spain) & Trevor Robbins (UK)
Speakers: Tobias Hauser (UK), Aude Belin-Rauscent (UK), Martijn Figee (USA)

Parallel Symposium Session 2: 16h10 - 17h30
Corticostratal mechanisms of inhibitory control: a tribute to Dawn Eagle
Chair - Amy Milton (UK)
Speakers: Trevor Robbins (UK), Christelle Baunez (France), Emma Robinson (UK), Karly Turner (Australia)

The role of the gut microbiome in drug addiction.
Chair - John Cryan (Ireland)
Speakers: Ruben Garcia-Cabreroz (Ireland), Nathalie Delzenne (Belgium), Drew Kiraly (USA), Sabita Roy (USA)

Behavioral and molecular factors in cocaine reinforcement, choice, and reward.
Chair/Spokes - William Stoops (USA).
Speakers: Erin Calipari (USA), Serge Ahmed (France), Karen Ersche (UK)

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17h35 - 18h05 Nanopresentations
18h10 - 19h05 Poster Session

NB: All timing shown above are in CEST. Symposia will be held as parallel sessions.

Full program
DAY 4 (July 16th)

13h00-14h00 European Behavioural Pharmacology Society Annual General Meeting

Parallel Symposium Session 1: 14h00 - 15h20
Many faces of stress: different approaches to understand a complex phenomenon.
Chair - Plinio Cassarotto (Finland)
Speakers: Carmen Sandi (Switzerland), Sabine Spijker (The Netherlands), Caroline Blojone (Finland), Maurizio Popoli (Italy)

Getting under the hood: Identifying the scope of dopamine’s role in learning (and behavior).
Chair/Spokes - Geoffrey Schoenbaum (USA).
Speakers: Thorsten Kahnt (USA), Ingo Willuhn (The Netherlands), Roshan Cools (The Netherlands)

15h20 - 15h40 Awards Ceremony

Parallel Symposium Session 2: 16h05 - 17h25
The secret of the magic potion: Cognitive enhancement using pharmacology.
Chair/Spokes - Anke Sambeth (The Netherlands)
Speakers: Carl Roberts (UK), Saskia Nagel (Germany)

Drug harms and drug policy.
Chair/Spokes - Jan Ramaekers (The Netherlands).
Speakers: David Nutt (UK), Jan van Amsterdam (The Netherlands), Jurgen Rehm (Canada)

Do not lose it in the crowd. Novel statistical methods and machine learning techniques in assessing inter-individual variability in behavioral neuroscience.
Chair/Spokes - Kshitij Jadhav (Switzerland)
Speakers: Maxime Fouyssac (UK), Brice Bathellier (France), Patricia Lockwood (UK)

17h25 - 17h55 Closing Ceremony

EBPS Satellite Workshop, 12th July

The day before the EBPS 2021 Biennial Meeting, on 12 July, there will be a satellite Workshop on Psyc
hedelics, open exclusively to post-docs, Ph.D. students, and master students. There is a limited number of
slots available and the organisers will select participants based on a “first-come, first-served” basis but also
ensuring a balanced distribution. Those selected will need to pay a separate participation fee of € 40. The
aims of the workshop are to (i) understand the perspectives of the different stakeholders involved in psyc
hedelic medicine, (ii) understand the regulatory frameworks in which psychedelic medicines can be used,
(iii) understand how substance-assisted therapy works from the perspective of the patient, therapist and
researcher and (iv) understand what the acute and longer term effects of psychedelics are brain and behav
iour. For more information on how to register, click here.
Dopamine receptors regulate preference between high-effort and high-risk rewards

(Psychopharmacology, 2021).

Daniel Gabriel

Department of Psychology, Memphis, TN, USA

In pursuit of any given goal, we often find ourselves facing a choice between expending a large amount of effort or taking a gamble and hoping it pays off. A common example of this may be found in determining how we pay for food and shelter. Should we continue steady work for a reliable paycheck or take a trip to the nearest blackjack table? While the end goal in these situations is the same, deciding how to achieve it requires us to evaluate the costs accompanying each course of action. Disruptions to these cost/benefit evaluations often underlie the development of severe psychopathologies, such as bias toward high risk/low effort reinforcement in substance use disorder1. Understanding the neurobiological bases of these decision-making processes will facilitate developing both preventative and therapeutic treatments for pathologies of decision-making.

Standard cost/benefit decision-making assessments measure choice between a small vs large reinforcer associated with a dynamic discounting factor, such as risk or effort. This approach has identified many neural mechanisms underlying economic decision-making, highlighting the neurotransmitter dopamine as particularly critical in the cost/benefit evaluations central to this process2-4. However, these designs fail to capture the complexity common to real-world decisions, e.g. the previous payback-blackjack dilemma, where the choice is not between different goals, but rather different costs associated with ways to pursue a given goal. Furthermore, activity at D1- and D2-like dopamine receptors directs effortful and probabilistic choice similarly, suggesting a role for these receptors when evaluating effortful or probabilistic costs prior to a decision. The overlap of neural substrates governing the evaluation of effort and risk raises the question of which cost takes precedence in cost/benefit evaluations. That is, which cost is preferable when evaluating both prior to a decision?

This question was directly pertinent to my current research into the neurobiology of decision-making as a graduate student in Dr. Nicholas Simon's lab at the University of Memphis. To address it, we developed the effort vs probability (EvP) task wherein subjects choose one of two identical reinforcers, each associated with distinct discounting factors: 1) a progressively more challenging effort requirement (effort-reinforcement task was delivered in 3 increasing difficulty levels), or 2) a low probability of reinforcement (probabilistic choice: 25% chance of reward delivery). Rats were able to detect changes to conflicting costs and consistently adjusted behavior accordingly when either option became more costly. We tested the effect of dopaminergic manipulation on choice between conflicting effortful and probabilistic costs using the drug of abuse cocaine and D1/D2 specific agonists and antagonists. We found, subjects activation is crucial in biasing choice preference toward probabilistic over effortful rewards, implicating these receptors as potential therapeutic targets for biases toward risk-taking over effort and as biomarkers for identifying vulnerabilities toward developing maladaptive patterns of decision-making.

Multiple controls were conducted to confirm that factors other than effort and probability were not skewing choice in EvP. As reported in the publication, comparison of choice behavior in EvP was compared to a static effort vs decreasing probability task, confirming 1) that choice in EvP was unrelated to static vs dynamic cost preference, and 2) that D2 receptor activation does not alter static vs dynamic cost preferences. Another task variant confirmed our results were not due to delay intrinsic to completing an effort requirement. Additional controls were not reported in the published manuscript due to space constraints and their lack of import to the central findings, such as a variant in which effort-equivalent delays preceded reward delivery after probabilistic choices.

The EvP provides unique insight to decisions between conflicting costs in pursuit of similar goals. Its final design was the culmination of a prior attempt to establish a behavioral measurement of preference between 3 discounting factors: effort, probability, and delay. Choice preference in economic decision-making is not influenced equally by different discounting factors. This original three-factor task aimed to discern where preference for one discounting factor over another is not solely due to aversion towards a specific cost, but rather arises from a difference in its comparative value. To measure this rock/paper/scissors style of economic decision-making, subjects chose between effort vs probability, effort vs delay, and probability vs delay within a single session. This design required identifying an “indifference point” (wherein choice is nearest a 50% split between two options) for each combination of costs. To determine these, each combination was tested with one cost held static while the other changed throughout the session. Unfortunately, this three-factor task was dis-carded after determining subjects would not evaluate options rationally. Choice across the 3 combinations of discounting factors either varied wildly across sessions or else subjects clearly displayed a side bias (choosing a reward based on its lever rather than the cost associated with it). We determined choice between dynamic effort requirements vs static probabilities to be the most useful analog to real-world decision-making, and designed the EvP using final parameters derived from the multiple static-dynamic reversal comparisons described above. The EvP sets an increasing effort requirement against a static probability to model real-world situations involving variable degrees of effort requirement. To use the previous payback/blackjack dilemma, while a casino’s lure of easy money remains constantly unlikely to deliver, the effort needed to get a promotion may exceed that needed to merely maintain a steady paycheck.

The EvP provides, to our knowledge, the first measurement of decision-making in rodents between high-effort vs high-risk costs in pursuit of equivalent outcomes. Delineating the neurobiology underlying comparison of distinct costs is vital to identifying the mechanisms that drive complex decision-making and how these mechanisms are disrupted in psychopathology. This importance is emphasized by our manuscript, which demonstrates that the comparison between costs alters the influence of dopaminergic activity on evaluating high-effort or high-risk rewards. Furthermore, in addition to identifying D2 receptor activation as a major driver behind bias toward probabilistic over effortful choices, the EvP provides a unique framework from which future experiments may assess brain region and circuit specific mechanisms of complex decision-making.


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EBPS T-Shirts!

In the leap up this year’s biennial, Marco Venniro has designed for us a T-shirt which we plan on selling to all who are interested! Stay tuned on how you can get your hands on one! And of course, many thanks to Marco for creating such a beautiful design!

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Have your details changed?

All our communications with members are carried out online. If we don’t have your most recent email address, then you miss out! So if you’ve moved labs or countries recently, let us know by sending us an email with your new details! Membership payments can now also be made via Stripe on our new website.

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