ICBEM Valdivia 2018 Report for ISN

L. Felipe Barros MD PhD and Mary McKenna PhD.

## "13<sup>th</sup> International Conference on Brain Energy Metabolism: How Metabolism Dictates Neurotransmission, Function and Behavior",

#### 1. Basic Information

The 13<sup>th</sup> International Conference on Brain Energy Metabolism took place from March 07-10, 2018 and was hosted by Dr. L. Felipe Barros. The conference was held at the Center for Scientific Studies – CECs, Valdivia, Chile.

**Organizers:** The program and student-postdoctoral fellow travel award committee consisted of: Mary C. McKenna, USA (Chair); L. Felipe Barros, Chile (Vice-Chair); Gilles Bonvento, France; Mauro DiNuzzo, Denmark; Kelly Drew, USA; Joao Duarte, Sweden; Johannes Hirrlinger, Germany; Caroline Rae, Australia; Michael Robinson, USA; Susanna Scafidi, USA; Arne Schousboe, Denmark; Ray Swanson, USA; Helle Waagepetersen; Denmark; Bruno Weber, Switzerland; and Albert Yu, China. The local organizing committee (all from Chile) included L. Felipe Barros (Chair), Felipe Amtmann, Felipe Baeza-Lehnert, Yasna Contreras, Loreto Fernández, Ignacio Fernández-Moncada, Bredford Kerr, Ivan Ruminot, Pamela Sandoval and Alejandro San Martín.

The organizing committees included both junior and senior scientists, with new members to bring fresh points of view and vitality to the program. Several of the members of the program committee including the conference chair had been involved in the planning of previous meetings. Gilles Bonvento, Mauro DiNuzzo, Kelly Drew, Susanna Scafidi and Bruno Weber joined the committee for the first time to ensure that new ideas for the program were included. Johannes Hirrlinger, Caroline Rae, Michael Robinson, Ray Swanson, Arne Schousboe, Helle Waagepetersen and Joao Duarte were chosen for their acknowledged leadership in brain cell signaling, brain biochemistry, membrane transport, and NMR studies in health and disease. The local organizing committee included young researchers from the host organization and local universities.

The program committee also selected applicants for travel awards based on review and ranking of submitted abstracts and served on the poster talk selection committee. Fifteen abstracts from students (12)/postdocs (3) were selected for an 7 min oral presentation + 3 min discussion. Twenty one posters from students/postdocs were selected for a 2 min "Why you should come to my poster" presentation. Ray Swanson and Blanca Aldana organized three Evening Group Discussions based on input from attendees, which were chaired by Juan Bolaños, Gerald Dienel, Jordi Duran, Kelly Drew, Sandra Hewett and Michael Robinson.

**Venue:** The Center for Scientific studies in Valdivia, Chile, is handicapped accessible. Childcare and special meals were available for conference attendees.

### 2. Registration and registration fees

The full meeting registration fee was USD 880 for participants and USD 280 for guests over age 14. The subsidized registration fee for students was USD 620. Registration included conference fee, 4 nights hotel accommodation, opening reception, most meals, an excursion to a temperate forest reserve, boat trip and farewell dinner. The conference was attended by 105 participants, of which 38 were students/postdocs.

#### **3. Program** ‡ denotes young investigator

Wednesday, March 7<sup>th</sup> 2018

**15:00-17:50** Registration (and put up ALL posters, odd and even numbers)

18:00-18:15 Welcome: L. Felipe Barros (Chile)

**18:15-18:25** Words from Dieter Uslar (Colun SA, Chile)

18:25-19:25 Plenary Lecture

Gerald A. Dienel (USA)

Aerobic glycolysis during brain activation

Chairs: Mary McKenna (USA) and Ignacio Fernández-Moncada

**19:25-19:35** A Tribute to Leif Hertz (1930-2018)

Arne Schousboe (Denmark) and Mary McKenna (USA)

19:35-21:30 Opening Reception

Thursday, March 8th 2018

08:45-09:10 25 Years of ICBEM History

Mary McKenna (USA)

09:10-10:40 O2 metabolism & sensing

Chairs: Bruno Weber (Switzerland) and Elisa York (Canada)

S1: Sergey Vinogradov (USA)

Dynamic imaging of oxygen in the brain

**S2: Alexander Gourine** (UK)

Astrocytes as CNS metabolic sensors

S3: Ray Swanson (USA)

Bioenergetic regulation of microglia

10:40-11:00 Coffee break

11:00-13:00 Student awardee presentations

Chairs: Michael Robinson (USA) and Gilles Bonvento (France)

Anna Hadjihambi (UK), Antoine Cherix (Switzerland),

Elisa York (Canada), Emil Jakobsen (Denmark),

Marianne Maugard (France), Ernesto Miquel (Uruguay),

Nina Klimova (USA), Felipe Baeza Lehnert (Chile),

Zoe Looser (Switzerland), Jens Andersen (Denmark),

Sarah Rice (USA), Ignacio Fernández-Moncada (Chile)

13:00-14:30 LUNCH

14:30-15:30 Students/postdoc pitches "Why you should come to my poster"

Chairs: **Kelly Drew** (USA) and **Jens Andersen** (Denmark)

15:30-17:30 Bioenergetics and mitochondrial metabolism

Chairs: Sandra Hewett (USA) and Iván Ruminot (Chile)

S4: Caroline Rae (Australia)

Acetate and β-hydroxybutyrate in brain metabolism

S5: Charlotte Stagg‡ (UK)

Role of glutamate/GABA/glutamine metabolism in brain plasticity and neurological recovery

S6: Jakob Nissen‡ (Denmark)

Is glutamate metabolism via glutamate dehydrogenase important for brain mitochondrial metabolism?

17:30-19:30 Poster session I (odd numbers) with coffee, wine and cheese

Friday, March 9th 2018

09:00-11:00 Mitochondrial trafficking

Chairs: Arne Schousboe (Denmark) and Mariane Maugard (France)

**Special Imaging Talk** (40 min + 20 min discussion)

**Zu Hang Sheng** (USA)

Mitochondrial transport and energy homeostasis in neuronal degeneration and regeneration

S7: Mike Robinson (USA)

Physiologic and pathologic implications of functional interactions between astrocytic glutamate transport, calcium, and mitochondria

S8: Gary Yellen (USA)

Neuronal metabolic response to stimulation studied with fluorescent biosensors

## 11:00-11:20 Coffee break

### 11:20-12:20 Mitochondria/energy production/ROS

Chairs: **Johannes Hirrlinger** (Germany) and **Zoe Looser** (Switzerland)

S9: Juan Bolaños (Spain)

The mitochondrial oxidative phosphorylation organization in neurons and astrocytes determine brain redox bioenergetics

**S10:** Margaret Rice (USA)

Dynamic regulation of neuronal activity and transmitter release

#### 12:20-13:40 LUNCH

## 14:00-15:30 NAD<sup>+</sup> homeostasis and salvage pathways

Chairs: Caroline Rae (Australia) and Carlos Díaz-García (USA)

**S11: Tibor Kristian (USA)** 

Multi-targeted effect of nicotinamide mononucleotide in amelioration of ischemic brain damage

**S12: Felipe Court** (Chile)

Schwann cell exosomes mediate neuronâ $\mathfrak{C}$ "glia communication and enhance axonal regeneration

S13: Marcelo Vargas (USA)

Enhancing NAD+ salvage in astrocytes to prevent astrocyte-mediated motor neuron death

#### 15:30-16:00 Coffee break

#### 16:00-17:00 Glycogen role and relationship to glucose metabolism and

neurotransmission

Chairs: Joao Duarte (Sweden) and Louis-Philippe Bernier (Canada)

S14: Hajime Hirase (Japan)

Brain glycogen distribution by glycogen immunohistochemistry in the mouse

S15: Jordi Duran (Spain)

Glycogen metabolism in astrocytes and neurons

### 18:00-20:30 Evening discussion groups and dinner

Session organizers: Ray Swanson (USA) and Blanca Aldana (Denmark)

### 20:30-22:30 Poster session II (even numbers) with coffee, wine and cheese

Saturday, March 10<sup>th</sup> 2018

**08:00-13:00** Morning Excursion

13:00-14:00 LUNCH

## 14:00-15:30 Neuronal - glial interactions modulating neurotransmission,

wakefulness and injury

Chairs: Susanna Scafidi (USA) and Kelly Chamberlain (USA)

**S16: Detley Boison** (USA)

Adenosine and A2A receptor modulation of neuronal-glial interactions and synaptic plasticity

S17: Kelly Drew (USA)

Seasonal rhythm in A1 adenosine receptor signaling in hibernation

S18: Sandra Hewett (USA)

System xc- exacerbates striatal symptomology and pathology induced by systemic administration of 3-nitroproprionic acid in female mice

#### 15:30-16:00 Coffee break

#### 16:00-17:00 How metabolism influences behavior

Chairs: Yuri Zilberter (France) and Maria Eugenia Guitart

(Argentina)

**S19:** Claire Rittschof‡ (USA)

Honey bee aggression: brain energy metabolism predicts behavior

and responds to social cues

**S20: Pierre-Yves Plaçais**‡ (France)

An upregulation of energy metabolism in the Drosophila mushroom

body triggers long-term memory formation

## 17:00-17:30 Postdoc awardee presentations

Chairs: L. Felipe Barros (Chile) and Mary McKenna (USA)

P14 Carlos Díaz-García (USA)

Synaptic stimulation increases glucose utilization in dentate granule neurons

P10 Kelly Chamberlain (USA)

Axon-glial interactions: oligodendrocyte-mediated enhancement of axonal [ATP] in health and injury

**P8 Louis-Philippe Bernier** (Canada)

Rapid plasticity of microglial metabolism sustains immune surveillance of the brain parenchyma

17:30-18:00 Closing comments and evaluation 19:00-24:00 Boat ride and Farewell Dinner

## 4. Meeting content: Speakers and Plenary Speakers.

The conference had one keynote speaker, Gerald Dienel (University of Arkansas, USA). Zu Hang Sheng (NIH, USA) gave a Special Imaging Talk. There were 8 formal sessions each with 2-3 speakers in which the work of 20 invited speakers was presented in 20 min talks; about 30% of the time for each session was devoted to discussion of speakers' presentations and session content. Two invited speakers, Cristina Alberini and Vera Adam-Vizi, were unable to attend at the last minute for personal reasons. Gary Yellen was added to replace one speaker and presented interesting novel findings of neuronal metabolism using a NADH sensor. Fifteen young scientists were selected for short oral presentations (7 min + 3 min question period) based on the quality of their abstracts. These presentations were first-rate and were highly-regarded by conferees. Two of these were selected to receive a certificate and small prize sponsored by the Journal of Neuroscience Research. All posters were presented at two 2h sessions with 47 poster presenters; all posters were on permanent display, which enabled discussions among conferees throughout the meeting. Two of the student posters were selected to receive a certificate and small prize sponsored by the Journal of Neuroscience Research.

We had arranged that participants could suggest topics for Group Discussions scheduled for 2 h during the second full day of the meeting. Based on these proposals six chairs designed and chaired the discussion sessions. This was very interactive and successful. Informal interactions were encouraged during coffee breaks, lunch, and poster session; refreshments were provided during these events. For further information, please access the conference website at <a href="http://cecs.cl/icbem/">http://cecs.cl/icbem/</a>

**5. Highlights of the Meeting:** The Plenary Lecture was a tour de force by Professor Gerald Dienel, who gave a comprehensive historical introduction to the exciting and clinically relevant subject of activity-dependent aerobic glycolysis in the brain. This phenomenon, linked to intercellular lactate exchange, generated considerable discussion that continued throughout the meeting, particularly in one the Evening Discussion Groups. A second highlight was the Special imaging Talk by Dr. Zu Hang Sheng, who is using modern fluorescent reporters to bridge the gap between the fields of mitochondrial biology and mitochondrial metabolism.

The formal sessions focused on oxygen metabolism & sensing, bioenergetics & mitochondrial metabolism, mitochondrial trafficking, mitochondria energy production, NAD<sup>+</sup> homeostasis & salvage pathways, glycogen and relationship to glucose metabolism & neurotransmission, neuronal – glial interactions modulating neurotransmission, wakefulness & injury, and a session dedicated to the reciprocal relationship between metabolism & behavior.

Of particular interest were the 15 seven-minute talks given by students and postdocs, who impressed by the quality of their science and their capacity to communicate their science, and also the 21 two-min "Why you should come to my poster" given by young poster presenters. The future of the field and this conference looks highly promising.

### 6. Participants

**Conferee demographics:** The conference had a total of 105 attendees from 15 countries in the Americas, Europe, Asia and Oceania; conferees included 42 females and 63 males; females accounted for 47% of the chair positions, 30% of the invited speakers, and 50% of the travel awards (see Tables 1 and 2, below).

Table 1. Categories of conference participants

Participant category	Total	Female	Male
Registered	105	42	63
Chair	44	21	23
Invited speaker	21	6*	15*
Student & Postdoc short talk	15	7	8
Poster presenter	47	18	29
Travel award recipient	24	12	12

<sup>\*</sup> two female invited speakers dropped out shortly before the meeting, after which one male speaker agreed to come.

Table 2. Countries represented at the conference

Country	# of Participants
Argentina	3
Australia	1
Canada	3
Chile	27
Denmark	6
France	7
Germany	4
Greece	1
Japan	1
Slovenia	2
Spain	3
Sweden	1
Switzerland	10
United Kingdom	7
United states	27
Uruguay	2
Total	105

#### 7. Material distribution

Registrants received a well-designed abstract book with contact information and pictures of conferees. They were also given an eco-friendly carrier bag, a t-shirt, a personalized coffee mug crafted by a local artist, a pen and a leaflet with a map and information regarding local amenities.

#### 8. Social events

The conference offered 3 formal social events: a reception cocktail, an excursion to the unique Valdivian temperate forest, and the closing dinner (with dancing) in a restaurant that was accessed after a 45 min boat ride. The social events provided an excellent opportunity for informal exchange between students and established investigators and were very well received, as judged by the high scores obtained in the conference evaluation.

#### 9. Travel awards

The attendance of 24 young researchers was supported by travel awards provided by the International Society for Neurochemistry (ISN), the International Society for Cerebral Blood Flow and Metabolism (ISCBFM), and The National Institutes of Health (NIH). Travel award application information was advertised on the meeting website (<a href="http://cecs.cl/icbem/">http://cecs.cl/icbem/</a>) and applications were evaluated by the Program Committee. Based on the high scientific merit of their abstracts, all of the student and postdoc applicants were granted travel awards. All travel awardees presented their work in the poster sessions and/or short talk and poster pitches so that they had direct interactions with conference attendees.

Travel awards were provided with ISN funds to 13 graduate students and postdoctoral fellows from 7 countries:

Blanca Aldana, Denmark

Jens Andersen, Denmar

Louis Philippe Bernier, Canada Antoine Cherix, Switzerland

Amal Gregosa, Argentina María Eugenia Guitart, Argentina

Anna Hadjihambi, United Kingdom Patrick Hosford, United Kingdom

Emil Jakobsen, Denmark Sofie Christensen, Denmark

Rodrigo Lerchundi, Germany Blanca Lizarbe, Switzerland

Zoe Looser, Switzerland

### 10. Registration subsidies for Invited Speakers

The registration costs of five speakers were covered with ISN funds:

Sergei Vinogradov, USA

Charlotte Stagg, United Kingdom

Ray Swanson, USA

Felipe Court, Chile

Jakob Nissen, Denmark (Young investigator)

#### 11. Sponsorship

ISN funding was essential to support travel awards for young investigators and costs related to invited speakers. ISN funds were used as stipulated in the ISN Small Conference directive, with 79% allocated to young scientists. During the second day of the conference, Caroline Rae, a member of our Program Committee, addressed the audience to introduce ISN, its mission and activities, with particular emphasis on the many opportunities available for young scientists (see photograph below). Additional financial support for the conference was obtained from the International Society for Cerebral Blood Flow and Metabolism (ISCBFM), The National Institutes of Health (NIH), Colún, Chile, and Wiley, USA. The grant applications to ISN, ISCBFM and NIH were competitively reviewed prior to award. Registration fees from attendees and institutional support from CECs provided additional funding.

## 12. General budget; detailed ISN budget, how the ISN funds were utilized

The total cost of the conference was USD 104,042 (as of March 30<sup>th</sup> 2018; subject to modification due to exchange differences and ongoing bank charges for international transfer related to travel awards). The funds granted by ISN were used as follows:

<u>Table 3. Young investigators travel awards</u> (amount assigned according to geographical location):

Name	Young scientist Travel award (USD)	Student registration subsidy (USD)
Blanca Aldana	750	
Louis-Philippe Bernier	650	
Amal Gregosa	400	260
Anna Hadjihambi	750	260
Emil Jakobsen	750	260
Rodrigo Lerchundi	750	
Zoe Looser	750	260
Jens Andersen	750	260
Antoine Cherix	650	260
María Eugenia Guitart	400	260

Patrick Hosford	750	
Sofie Christensen	750	260
Blanca Lizarbe	750	
Subtotal	8850	2080

## **Table 4. Invited Speaker Registration Subsidy**

Name	Invited speaker registration subsidy (USD)
Sergei Vinogradov	880
Felipe Court	550
Ray Swanson	880
Charlotte Stagg	880
Jakob Nissen	880
Subtotal	4070

#### Table 5. ISN FUNDS USE

Young scientist Travel award (USD)	Student registration subsidy (USD)	Invited speaker registration subsidy (USD)	Total
8850	2080	4070	15000

## 13. List of participants

## Table 6. List of participants ICBEM 2018

	First name	Surname	Country
1	Blanca	Aldana	Denmark
2	Karin	Alegría	Chile
3	Angeles	Almeida	Spain
4	Jens	Andersen	Denmark
5	Claudio	Araya	Chile
6	Robinson	Arce	Chile
7	Guillaume	Azarias	Switzerland
8	Felipe	Baeza	Chile
9	Felipe	Barros	Chile
10	Louis-Philippe	Bernier	Canada
11	Detlev	Boison	USA
12	Juan	Bolaños	Spain
13	Gilles	Bonvento	France
14	Kathryn	Brewer	USA
15	María Patricia	Cassina	Uruguay
16	Kelly	Chamberlain	USA
17	Antoine	Cherix	Switzerland
18	Pedro	Cisternas	Chile
19	Yasna	Contreras	Chile
20	Francisca	Cortés	Chile
21	Felipe	Court	Chile
22	Nancy	Cruz	USA
23	Carlos	Diaz-Garcia	USA
24	Gerald	Dienel	USA
25	Ajit	Divakaruni	USA
26	Guillaume	Donati	Switzerland
27	Kelly	Drew	USA
28	Joao	Duarte	Sweden
29	Jordi	Duran	Spain
30	Richard	Edden	USA
31	Afroditi	Eleftheriou	Switzerland
32	Ignacio	Fernández	Chile
33	Andrés	González	Chile
34	Alexander	Gourine	UK
35	Amal Patricio	Gregosa	Argentina
36	Chris	Groten	Canadá
37	María Eugenia	Guitart	Argentina
38	Anna	Hadjihambi	UK
39	Sandra	Hewett	USA
40	Bryan	Hinrichsen	Chile
41	Hajime	Hirase	Japan
42	Johannes	Hirrlinger	Germany
43	Patrick	Hosford	UK
44	Brad	Hubbard	USA
45	Anton	Ivanov	France
46	Emil	Jakobsen	Denmark
47	Sergey	Kasparov	UK
48	Bredford	Kerr	Chile
49	Sofie	Kjellerup	Denmark
50	Nina	Klimova	USA
51	Tibor	Kristian	USA
52	Dasfne	Lee-Liu	Chile
53	Rodrigo	Lerchundi	Germany

54	Blanca	Lizarbe	Switzerland
55	Zoe	Looser	Switzerland
56	Paul	Maciejewski	USA
57	Luciano	Marpegan	Argentina
58	Marianne	Maugard	France
59	Mary	McKenna	USA
60	Ernesto	Miquel	Uruguay
61	Fanny	Mochel	France
62	Jakob	Nissen	Denmark
63	Evelyn	Pardo	Chile
64	Dimitrios	Patsatzis	Greece
65	Gaspar	Peña	Chile
66	Liuba	Peñate	Chile
67	Gustavo	Pérez	Chile
68	Amber	Philp	Chile
69	Pierre-Yves	Placais	France
70	Thomas	Preat	France
71	Hector	Quiróz	Chile
72	Veronika	Rackayova	Switzerland
73	Caroline	Rae	Australia
74	Margaret	Rice	USA
75	Clare	Rittschof	USA
76	Francisco	Rivera	Chile
77	Michael	Robinson	USA
78	Alejandro	Rojas	Chile
79	Victoria	Rosato	Argentina
80	Ivan	Ruminot	Chile
81	Alejandro	San Martín	Chile
82	Pamela	Sandoval	Chile
83	Susanna	Scafidi	USA
84	Joseph	Scafidi	USA
85	Arne	Schousboe	Denmark
86	Zu Hang	Sheng	USA
87	Jimena	Sierralta	Chile
88	Jessica	Soto	Chile
89	Charlotte	Stagg	UK
90	Raibel	Suarez	Chile
91	Ray	Swanson	USA
92	Anja	Teschmacher	UK
93	Shefeeq	Theparambil	UK
94	Laetitia	Thieren	Switzerland
95	Nina	Vardjan	Slovenia
96	Marcelo	Vargas	USA
97	Génesis	Vega	Chile
98	Sergey	Vinogradov	USA
99		Weber	
	Bruno Ulrike	Winkler	Switzerland Germany
100			,
101 102	Matthias	Wyss Yellen	Switzerland USA
	Gary		
103	Elisa	York	Canada
104	Yuri	Zilberter	France
105	Robert	Zorec	Slovenia

# 14. Photos (please see Addendum)

15. Conference evaluation by participants: The conference evaluation questionnaire was completed by 80% of the attendees. The conference was evaluated in terms of science, discussion, conferees, management, atmosphere, and overall suitability. Overall, the conferees rated the conference very highly (Table 7), and most verbal comments were extremely positive, with some constructive suggestions that were included in the evaluation questionnaire (Table 8). The mean scores for most aspects of the conference fell between 5 (highest score) and 4 (second highest), with an overall mean and SD for all categories of 4.6  $\pm$  0.6 (Table 7). Based on numerical scores and respondent comments, there was a strong consensus that the program was first-rate and the speakers were diverse and reflected the composition of the field, and the presentations stimulated fruitful and good discussions. A relatively weaker agreement of 3.7 ± 1.0 was computed for the statement "young scientists participated in discussions". This is a key aspect that needs improvement and will be given due consideration by the Program Committee of the next ICBEM, starting from constructive comments listed in Table 8. The full audience was present at the venue throughout the meeting, which was a clear goal that was successfully accomplished. Conference management and the atmosphere were excellent and overall suitability of the conference venue was very high. The organized group discussions got high rating and encouragement to do that more for future meetings. Especially, this initiative encourages more interaction between the young and the senior scientists. The written comments were generally strongly positive, and there were also many 'undocumented' verbal comments to the local organizers and program committee throughout the meeting and in written afterwards that were extremely enthusiastic with regard to the science, program, organization and venue.

Table 7. Conference evaluation responses to questionnaire from 84 of 105 conferees

Rating Score: 5 = agree completely

4 = mild agreement

3 = neutral

2 = mild disagreement 1 = disagree completely

	Mean	Standard
Science/ideas	score	Deviation
presentations defined and analyzed the most important ideas & opportunities	4.6	0.5
presentations included a substantial amount of unpublished data	4.1	8.0
presentations were at the frontier of the field	4.6	0.6
conference was thought-provoking, stimulating, exciting	4.8	0.4
posters sessions contributed unpublished research at frontier of field	4.6	0.6
Discussion		
adequate discussion time was allowed	4.7	0.6
one person or group did not overly dominate discussion	4.2	1.0
discussions evoked and explored new research directions	4.2	0.9
young scientists participated in discussions	3.7	1.0
adequate time allocated for discussion at posters	4.7	0.5
Program and Conferees		
good selection of speakers	4.8	0.5
speakers were present and available for discussion after their presentation	4.8	0.5
attendees were diverse and reflected the composition of this field	4.6	0.5
pool of speakers was diverse and reflected the composition of the field	4.7	0.5
Management, organization and atmosphere		
opportunities were available for networking with colleagues	4.9	0.3
lodging was comfortable	5.0	0.1
Food and beverages were appropriate	4.7	0.6
social activities contributed strongly to the quality of the meeting	4.9	0.4
the quality of the conference venue was adequate	4.7	0.7
Overall suitability		
the conference met my expectations	4.9	0.4
I expect to attend this conference again	4.7	0.6
this was the best conference in the field I attended during the last year	4.6	0.7
Overall score	4.6	0.7

#### 16. Comments from at least 3 participants

### **Table 8. Comments from conferees**

#### (All comments are included)

I truly had a great experience. I am so happy to have attended early in my career to benefit from all the feedback and interesting discussions. I also thank you for the travel award and opportunity to speak

I had a great time and learned so much about brain metabolism - this was probably the most useful and interesting conference I have been to yet (it was my first ICBEM)! I'm excited to get back to experiments now with many new ideas

Thank you for this unique meeting. The length was great as with the contents. It may have been nice to have a "tools+approaches" formal discussion in the addition to the "ideas+questions" focused discussion

More poster time would be beneficial

This was an excellent meeting. The size was ideal and I very much appreciated the opportunities for young scientists. My only suggestion would be to perhaps include more speakers from metabolism research without necessarily a background in strictly neuroscience. It could expose us as a community to new methods, ideas and perspectives

Many talks were based on published data, which is necessary but did not present much novel data. Substantial street noise in the auditorium

Rare case when the key conflicting issues were discussed extensively and constructively Great location and astonishing place to be!

I enjoyed the conference very much and I learned many new things and made invaluable connections

This is my first tie at ICBEM and I have been to a lot of other meetings of different types and this was definitely one of the very best. I will be back and really appreciate how much the trainees were given tons time to speak and encouraged to participate so much. It was so fun to meet all the speakers. The meeting provides of opportunities for discussion

Good idea with the poster pitches, continue with this

Thank you for this outstanding event

I am very happy to have attended my first ICBEM meeting. For sure not may last! Thank you for organizing so well

Too many talks with old data

The ability to discuss science and groups and individually was fantastic. Need to encourage junior folks to ask more questions. Those that presented were wonderful knowledgeable

Love this meeting! I learned so much + met many amazing people in this field, it was very welcoming! Would like some new techniques/tools

Excellent meeting. Discussion session was excellent, great idea!

Beverages were great. Food was good but did not meet expectation in terms of which meals were given or not

It would be good to include emerging topic session

One the best meetings! Great support for junior investigators, great discussions!

- 1. I think that students would participate more if professors are not part of the discussion at the beginning. My suggestion is that the discussion part can be divided into two parts, a first part where only students and post docs participate (less stress to ask a question) with the help of a chair professor (Mike Robinson was really good at this!) and a second part where everyone can participate. At the end of the first part a summary of the discussion can be made (maybe formulated questions etc) to be then further discussed on the second part where also professors participate
- 2. My second suggestion is on the first part of the discussion: participating students should prepare 1 or 2 questions to ask the rest of the group. That way, everyone has to talk, including introducing themselves, making it -maybe- a bit easier to break the ice

Excellent meeting, congratulations!

For me it was my 4th ICBEM meeting and I have to say it was my best. The program was chosen in a way, that many aspects of were covered and there was still enough time for discussions. In addition, I really liked that also some ,non-scientific activities were on the schedule like the boat trip and the hike

But in addition to this, also the details were very well organized and one could see that many thoughts were invested to make the stay for the people as pleasant as possible. Things like the city map with suggestions for where to go, the T-shirt, the food and beverages during breaks, the assistance by your people already before the meeting etc. were really great.

Last but not least, obviously the location for accommodation was very well chosen with the Hotel Dreams.