

This is an Open Access document downloaded from ORCA, Cardiff University's institutional repository: <https://orca.cardiff.ac.uk/id/eprint/181763/>

This is the author's version of a work that was submitted to / accepted for publication.

Citation for final published version:

Hegyi, Peter, Garami, Andras, Agusti, Alvar, Agyemang, Charles, Anadon, Arturo, Balla, Jozsef, Banach, Maciej, Bennett, Derrick, Brugha, Traolach Sean, Buitelaar, Jan, Carvalho, Felix, Ceron, Jose Joaquin, Cohen, Adam, Dalkara, Turgay, Daly, Ann K., Dayan, Peter, de Herder, Wouter W., Del Prato, Stefano, Dobrev, Dobromir, Dorobantu, Maria, Esiri, Margaret, Fauser, Bart, Ferdinandy, Peter, Filippatos, Gerasimos, Fitzgerald, Rebecca, Gambari, Roberto, Ganser, Arnold, Giamarellou, Helen, Glover, Vivette, Grzybowski, Andrzej, Gulyas, Balazs, Hogendoorn, Pancras C. W., Holzer, Peter, Hulshoff Pol, Hilleke, Joensuu, Heikki, Juhasz, Gabor, Kaprio, Jaakko, Kondorosi, Eva, Langs, Georg, Lau, CS, Laurence, Jeffrey C., Levi-Schaffer, Francesca, Lyons, Ronan A., Lyu, Aiping, Kumar, M. N. V. Ravi, Mancina, Giuseppe, McCormack, Brendan, McInnes, Iain, McKenna, Hugh, Megraud, Francis, Misrahi, Micheline, Peters, Godefridus J., Petersen, Ole H., Piguet, Vincent, Poynard, Thierry, Qin, Ling, Reiner, Zeljko, Reitsma, Pieter, Rogler, Gerhard, Rossor, Martin, Sackley, Catherine, Saunders, Philippa, Schulz, Rainer, Schwab, Matthias, Sermeus, Walter, Shariat, Shahrokh, Skakkebæk, Niels Erik, Steyerberg, Ewout W., Swash, Michael, Szekanecz, Zoltan, Thiery, Jean Paul, Thompson, David R., Varro, Andras, Vieth, Michael, Wensing, Michel, Wong, John E. L., Yu, Jun, Zaidi, Mone, Zumla, Alimuddin, Barna, Viktoria, Engh, Marie Anne, Farkas, Richard, Harnos, Andrea, Nagy, Rita, Obeidat, Mahmoud, Rancz, Anett, Teutsch, Brigitta, Varga, Gabor, Vancsa, Szilard, Wenning, Alexander S., Kuppuswamy, Annapoorna, Morsanyi, Kinga and Solymosi, Katalin 2025. Academia Europaea's guidelines for the visualization of clinical outcomes [Comment]. *Nature Medicine* 10.1038/s41591-025-03992-1

Publishers page: <http://dx.doi.org/10.1038/s41591-025-03992-1>

Please note:

Changes made as a result of publishing processes such as copy-editing, formatting and page numbers may not be reflected in this version. For the definitive version of this publication, please refer to the published source. You are advised to consult the publisher's version if you wish to cite this paper.

This version is being made available in accordance with publisher policies. See <http://orca.cf.ac.uk/policies.html> for usage policies. Copyright and moral rights for publications made available in ORCA are retained by the copyright holders.



Academia Europaea's guidelines for the visualization of clinical outcomes

A working group of Academia Europaea proposes the addition of a 'ring diagram' in clinical publications for the quick evaluation of translational implications.

Peter Hegyi, MD, PhD, DSc, MAE^{1, 2*} & Andras Garami, MD, PhD, DSc^{2*} on behalf of the Academia Europaea Translational Medicine Working Group^{*}

^{*}equally contributed

¹Centre for Translational Medicine and Institute of Pancreatic Diseases, Semmelweis University, Budapest, Hungary

²Institute for Translational Medicine, Medical School, University of Pecs, Pecs, Hungary

Corresponding Author: Peter Hegyi, MD, PhD, DSc, MAE, Centre for Translational Medicine and Institute of Pancreatic Diseases, Semmelweis University, 26 Ulloi Str, Budapest, H1085 Hungary (hegyi.peter@semmelweis.hu). Phone: +36-70-375-1031.

Manuscript word count: 1516 (not including title page, declarations, references, table, and figure legend)

Background

In the increasingly data-rich domains of healthcare and health policy, translating research findings into actionable decisions and bridging the gap between complex research findings and effective policy decisions remains crucial. While there has been a substantial rise in peer-reviewed scientific publications over the past three decades, this surge in data and knowledge has not consistently been translated into corresponding reductions in avoidable mortality rates.[1]

One potential reason is that policymakers, healthcare practitioners, and researchers encounter abundant clinical data, often needing specialized knowledge to interpret it fully.[2] Clinical outcomes are complex to assess, requiring consideration of efficacy, safety, and cost-effectiveness to inform effective healthcare policy. Despite advances in research methodologies and data collection, the difficulty in synthesizing multifaceted information and translating it into practical, real-world applications remains a major hurdle for healthcare providers and policymakers alike.

Healthcare decision-making involves a delicate balance between multiple factors: efficacy, safety, cost, and patient preferences, among others. Traditional data visualization techniques, such as forest plots, Kaplan-Meier survival curves, heat maps, decision-tree pathways, traffic-light models, and Gantt charts, have long been employed to present research findings. While these tools serve their purpose within the academic community, they often fail to provide clear, actionable insights for policymakers, hospital administrators, and frontline clinicians tasked with making real-world decisions. This gap between the production of scientific knowledge and its translation to healthcare systems creates barriers to improve patient outcomes and optimize healthcare delivery.

In response to this challenge, Academia Europaea (AE) launched a project to develop an innovative and intuitive tool for visualizing clinical research implications (Figure 1A). The

result of this initiative is the “Ring Diagram Model”, which serves as a novel approach to distilling complex, multidimensional data into a structured and easily interpretable format. The model facilitates decision-making by presenting clinical outcomes through concentric color-coded rings, clearly delineating key dimensions such as efficacy, safety, and cost. This model offers a practical solution for translating clinical research into actionable, evidence-based decisions at all levels of healthcare, from policy to practice.

The ring diagram model

Unlike traditional charts, the ring diagram uses concentric layers to represent different decision-making dimensions such as efficacy, safety, and cost.

Each ring is color-coded for intuitive interpretation:

1. **Green:** Favourable outcomes (better effect, safer, lower cost)
2. **Yellow:** Neutral outcomes (comparable effect, similar safety, equivalent cost)
3. **Red:** Unfavourable outcomes (worse effect, higher risk, greater cost)
4. **Gray:** Unassessed domains where comparison is inconclusive

The central space of the ring diagram may optionally be used to indicate whether, for example, sex and gender considerations, age, ethnicity, genetic polymorphisms, genomic variation, or clinical and molecular biomarkers relevant to precision medicine apply to the therapeutic intervention. Such contents may be indicated in the central space with pictograms. A short notice in the legend can clarify which aspect deserves particular attention.

Background information on the criteria on which the ring-colour coding is based should remain available for reference. This intuitive model supports rapid interpretation of data, which is particularly valuable for policymakers and practitioners who need to evaluate complex, multi-faceted information quickly and identify areas where more evidence is required. By providing a layered visual summary, the ring diagram enables decision-makers

to immediately assess the trade-offs across these dimensions. All possible versions of the ring diagram can be generated via <https://chartgen.tn-centre.org/>.

We believe that the ring model will facilitate accessible science communication for various stakeholders, in order to ensure that research findings are effectively translated into policy and clinical practice.

Applicability of the model across study types

While systematic reviews, including meta-analyses, are a primary focus for the ring diagram model due to their role in synthesizing multiple study results, the model is also highly relevant for other research methodologies such as randomized controlled trials (RCTs), Observational Studies, Cost-Effectiveness and Economic Evaluations, Health Technology Assessments (HTAs), Comparative Effectiveness Research (CER), Diagnostic Accuracy, and Implementation Studies. The ring diagram should always be interpreted based on the overall conclusions of the study, and in RCTs, it should specifically reflect the primary outcome. It is important that decisions are made based on the best quality evidence.

Structuring the implication section

To maximize the impact of clinical research publications, an implications section should be placed either at the end of the discussion or as a separate subsection, depending on the journal's or publisher's style. This subsection should be tailored to three key audiences: policymakers, practitioners, and researchers. Reviewers and editors of the journal are in charge of carefully assessing the accuracy of the implications and should ensure that any biases in the model presented are avoided. The ring diagram's summary of efficacy, safety, and cost provides a structured framework for this section:

- **Implication for Policymakers:** The ring diagram visually prioritizes interventions that are cost-effective and high impact, supporting policy and funding decisions. Should focus on translating findings into clear, actionable steps.
- **Implication for Practitioners:** Clinicians (also including public health leads) gain a clear, structured overview of treatment and prevention in terms of efficacy, safety, and cost, facilitating evidence-based decision-making and supporting patient-centred choices.
- **Implication for Research:** The ring diagram highlights areas where additional evidence is needed to improve understanding. The visualization highlights gaps in knowledge, guiding future research priorities.

Examples and implications (Figure 1B-D)

Three greens: strongly recommended interventions

In mild biliary pancreatitis, da Costa et al.[3] showed that same-admission cholecystectomy reduced gallstone-related complications, including pancreatitis (better effect), with a very low risk of cholecystectomy-related complications (low risk), which also suggests cost-effectiveness (lower cost), as demonstrated in a later study.[4] This procedure could be illustrated with three greens (Figure 1B), urging its immediate implementation in clinical practice and policy guidelines (also see Table 1).

Mixed colors: context-dependent treatments

Chimeric antigen receptor T-cell therapy is an expensive intervention (high cost); however, it has been shown to provide durable clinical benefits (better efficacy) and an acceptable safety profile (similar risk) in specific patient subpopulations with non-Hodgkin lymphoma.[5] This would result in a mixed-colored ring diagram (Figure 1C), characteristic of a treatment that should be considered based on a thorough cost-benefit analysis (also see Table 1).

Three reds: treatments to be discontinued

As an example of a treatment that should be abandoned, secukinumab, a human monoclonal antibody that selectively neutralizes interleukin-17A (higher cost), was ineffective (lower efficacy) compared to placebo, and higher rates of adverse events were noted (more complications) in patients with moderate-to-severe inflammatory Crohn's disease.[6] This results in three reds in the ring diagram (Figure 1D), indicating that this treatment should be discontinued in clinical practice (also see Table 1).

International survey on the practical uses of the ring diagram model

An international survey was conducted among 190 participants from 16 countries, including young researchers, senior scientists, and policymakers, to evaluate the practical use of the ring diagram model. Across all groups, the model was rated highly for its clarity (average 4.22/5) and its potential to accelerate translation into practice or policy (average 4.33/5). The consistently positive feedback confirms the model's perceived usefulness across multiple levels of scientific and decision-making expertise (for details, see Supplementary Online Content).

Discussion

The ring diagram model represents a clear and informative approach to the visualization of clinical data to translate these into actionable insights for policymakers, practitioners, and researchers. In policymaking, interventions with predominantly green rings indicate high efficacy, safety, and cost-effectiveness, justifying their prioritization for funding and policy integration. This is especially critical in public health crises or budget planning, where rapid, evidence-based decisions are necessary. In clinical settings, practitioners often need to make fast decisions based on a combination of treatment efficacy, safety, and cost, especially in

resource-limited environments. For clinicians and healthcare practitioners, the model simplifies treatment comparisons.

By offering an intuitive summary, our proposed ring diagram model supports patient-centred and cost-conscious care. The proposed model might be an excellent tool in the context of shared decision-making, supporting informed decisions. This is an important issue,[7] which depends on building a good interaction among researchers, clinicians, and patients.

The model presented here is expected to support patients in deliberating and expressing their preferences and viewpoints during the decision-making process. Future studies could also explore its adaptability to dimensions like patient satisfaction, health equity, and long-term outcomes, tailoring the model to diverse healthcare contexts.

It should also be noted that although clear knowledge is a good starting point, it is often not sufficient for achieving implementation of a clinical practice. For instance, if the primary endpoint is a patient-related outcome there can be differences between countries with regards to regulations and cost-effectiveness of the same intervention. In cases of rare diseases, where costs can be excessive, the consideration of cost-effectiveness between countries is of crucial importance, since it can greatly impact the decision on treatment discontinuation.[8]

In conclusion, the ring diagram model represents a promising step forward in improving the communication of clinical research findings. By transforming complex data into an easily accessible and actionable format, the model has the potential to bridge the gap between research and real-world decision-making. Its widespread adoption could enhance the quality of healthcare policy, clinical practice, and research, fostering a more efficient and effective healthcare system that delivers better outcomes for patients and society.

Acknowledgements: we wish to acknowledge the following contributors (for affiliations, see Supplementary Information)

Charles Agyemang, Alvar Agusti, Arturo Anadon, Jozsef Balla, Maciej Banach, Derrick Bennett, Traolach Sean Brugha, Jan Buitelaar, Felix Carvalho, Jose Joaquin Ceron, Adam Cohen, Turgay Dalkara, Ann K. Daly, Peter Dayan, Wouter W. de Herder, Stefano Del Prato, Dobromir Dobrev, Maria Dorobantu, Margaret Esiri, Bart Fauser, Peter Ferdinandy, Gerasimos Filippatos, Rebecca Fitzgerald, Roberto Gambari, Arnold Ganser, Helen Giamarellou, Vivette Glover, Andrzej Grzybowski, Balazs Gulyas, Peter Hegyi, Joensuu Heikki, Pancras C. W. Hogendoorn, Peter Holzer, Hilleke Hulshoff Pol, Gabor Juhasz, Jaakko Kaprio, Eva Kondorosi, Georg Langs, CS Lau, Jeffrey C. Laurence, Francesca Levi-Schaffer, Ronan A. Lyons, Aiping Lyu, M. N. V. Ravi Kumar, Giuseppe Mancina, Brendan McCormack, Iain McInnes, Hugh McKenna, Francis Megraud, Micheline Misrahi, Godefridus J. Peters, Ole H. Petersen, Vincent Piguet, Thierry Poynard, Ling Qin, Pieter Reitsma, Gerhard Rogler, Martin Rossor, Catherine Sackley, Philippa Saunders, Rainer Schulz, Matthias Schwab, Walter Sermeus, Shahrokh Shariat, Niels Erik Skakkebæk, Ewout Steyerberg, Michael Swash, Zoltan Szekanecz, Jean Paul Thiery, David R. Thompson, Andras Varro, Michael Vieth, Michel Wensing, John E. L. Wong, Jun Yu, Mone Zaidi, Reiner Zeljko, Alimuddin Zumla, Viktoria Barna, Marie Anne Engh, Richard Farkas, Andras Garami, Andrea Harnos, Rita Nagy, Mahmoud Obeidat, Anett Rancz, Brigitta Teutsch, Gabor Varga, Szilard Vancsa, Alexander S. Wenning, Annapoorna Kuppuswamy, Kinga Morsanyi, Katalin Solymosi

Conflict of Interest Disclosures: None reported.

References

1. García MC, Rossen LM, Matthews K, et al. *MMWR Surveill Summ.* 2024;73(2):1–11.
doi: <http://dx.doi.org/10.15585/mmwr.ss7302a1>
2. Mabry PL. *Am J Prev Med.* 2011;40(5):S159-61. doi: 10.1016/j.amepre.2011.02.001
3. da Costa DW, Bouwense SA, Schepers NJ, et al. *Lancet.* 2015;386(10000):1261-68.
doi:10.1016/S0140-6736(15)00274-3
4. da Costa DW, Dijksman LM, Bouwense SA, et al. *Br J Surg.* 2016;103(12):1695-1703. doi:10.1002/bjs.10222
5. Jacobson CA, Chavez JC, Sehgal AR, et al. *Lancet Oncol.* 2022;23(1):91-103.
doi:10.1016/S1470-2045(21)00591-X
6. Hueber W, Sands BE, Lewitzky S, et al. *Gut.* 2012;61(12):1693-1700.
doi:10.1136/gutjnl-2011-301668
7. Elwyn G, Frosch D, Thomson R, et al. *J Gen Intern Med.* 2012;27(10):1361-67. doi: 10.1007/s11606-012-2077-6
8. Germeni E, Cooper J, Briggs A, et al. *BMC Nephrology.* 2024;25(1):411. doi: 10.1186/s12882-024-03770-0

Table 1. Examples of the ring diagram indicating different research interpretations

Ring Diagram Colour	Efficacy	Safety	Cost	Interpretation & Suggested Action
 (Three Greens)	Higher	Safer	Lower	Strongly recommended for immediate adoption in guidelines and practice.
 (One Green, Two Yellows)	Higher	Similar	Similar	Promising intervention; recommended with further validation.
 (Mixed: Green, Red, Yellow)	Higher	Higher Risk	Similar	Adequate but requires monitoring for safety concerns.
 (Three Reds)	Lower	Higher Risk	Higher	Should be discontinued or reconsidered in clinical practice.

Table 1 simplifies the interpretation of the ring diagram, making it easier for different stakeholders (policymakers, clinicians, researchers) to assess interventions quickly. It must be

noted that differences (occasionally extreme) in cost-effectiveness between countries should also be considered.

Figure 1

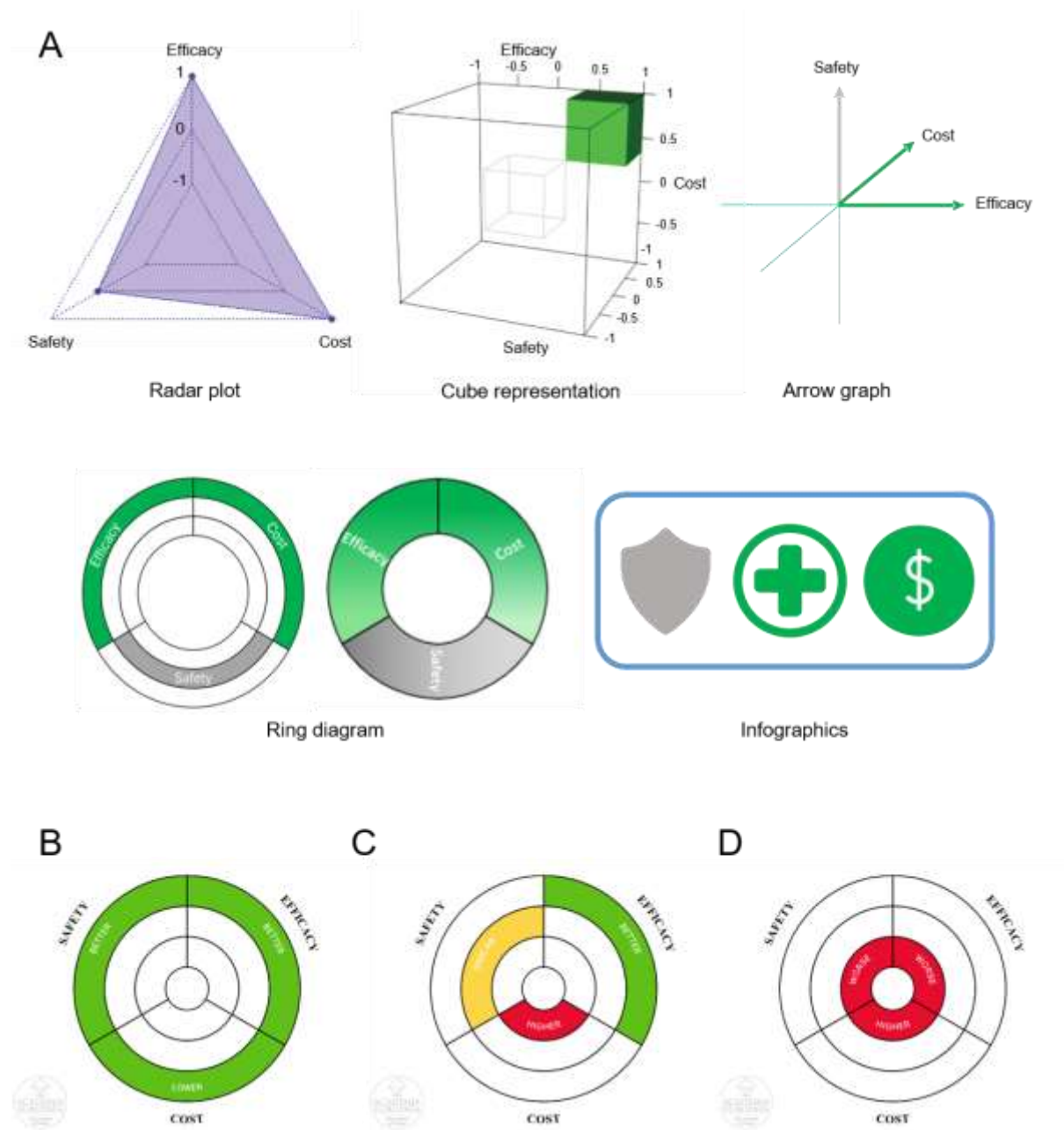


Figure 1. The candidate representations for Academia Europaea’s (AE) guidelines for visualizing research implications in publication (**A**). Five different diagram types were discussed. The ring diagram was considered to be the visualization tool most likely to distil complex clinical outcomes into a quickly accessible format. The project was initiated by the AE Basic and Clinical Translational Science (BCTS) section, the AE Budapest Knowledge

HUB, and the Semmelweis University Clinical Translational Medicine Centre in June 2024.

All AE members and leading clinical journal editors were invited. The finalized guidelines were ratified by the members in accordance with the Delphi process and accepted as an official AE statement. Three examples of the ring diagram model selected for visualizing research implications showing three greens (**B**), mixed colors (**C**), and three reds (**D**).

Supplemental Online Content

1: International survey about the practical use of the ring diagram model

To test the practical implications of the ring diagram model, we compiled a short survey to obtain feedback from the first users. The survey was sent out to all co-authors of the current manuscript, who were asked to distribute it in their institutions. We collected answers from 3 levels of evidence: policymakers (e.g., directors and heads of institutes/departments, governmental advisors, guideline developers), expert senior researchers (e.g., senior scientists, consultants), and young researchers (e.g., PhD students, early-stage researchers, resident doctors). Altogether, 190 individuals from 16 different countries completed the survey. Participants were allowed to select more than one role (e.g., senior researcher and policymaker), which resulted in answers from 133 young researchers, 87 senior scientists, and 20 policymakers. The answers to the questions ranged on a scale from 1 (worst) to 5 (best). Two general questions that were asked from all participants (N = 190): i) how easy it is to understand the ring diagram model, and ii) if the ring diagram model can accelerate the translation of scientific results into clinical practice or policy. The average scores (and standard deviations) to these questions were 4.22 (0.96) and 4.33 (0.85), respectively. Young researchers were asked another 2 questions: i) to what extent the ring diagram can help to understand the real-world relevance of their research results, and ii) how easy it is to use the ring diagram model when preparing or interpreting scientific results. They gave scores of 4.26 (0.77) and 4.19 (0.85), respectively. Senior scientist answered to 2 questions: i) whether inclusion of a dedicated “Implications” section in clinical or translational research papers is important, and ii) whether in such section the ring diagram model can help to understand the practical impact of the results. On average they gave scores of 4.57 (0.68) and 4.43 (0.77), respectively. Policymakers were asked i) whether the ring diagram model can make the decision-making process more efficient, and ii) would it help to prioritize between competing interventions. The average scores given were 4.31 (0.84) and 4.24 (0.95), respectively.

The results of our survey confirm that the herein proposed ring diagram model is considered useful at all three studied levels of expertise from young researchers to senior scientists to policymakers.

2: Contributing Authors

*First name, last name, and suffix (if applicable) are required and will appear in PubMed.

Group Name: Academia Europaea (AE) Translational Medicine Workgroup				
First Name and Middle Initial(s)	Last Name	Institution	Location (city, state/province, country)	Membership
Charles	Agyemang	Amsterdam University Medical Centres, University of Amsterdam	Amsterdam, The Netherlands	AE Member
Alvar	Agusti	Hospital Clinic-IDIBAPS-University of Barcelona, Spain	Barcelona, Spain	AE Member
Arturo	Anadon	Cumplutense University of Madrid	Madrid, Spain	AE member
Jozsef	Balla	University of Debrecen	Debrecen, Hungary	AE Member
Maciej	Banach	The John Paul II Catholic University of Lublin Liverpool Centre for Cardiovascular Science	Lublin, Poland Liverpool, United Kingdom	AE Member
Derrick	Bennett	University of Oxford	Oxford, United Kingdom	AE Member
Jan	Buitelaar	Radboud University Medical Centre	Nijmegen, The Netherlands	AE Member
Traolach Sean	Brugha	University of Leicester	Leicester, United Kingdom	AE Member
Felix	Carvalho	University of Porto	Porto, Portugal	AE Member, Editor-in-Chief of Trends in Toxicology
Jose Joaquin	Ceron	University of Murcia	Murcia, Spain	AE Member
Adam	Cohen	Leiden University Medical Centre	Leiden, The Netherlands	AE Member
Turgay	Dalkara	Bilkent University	Ankara, Turkey	AE Member
Ann K.	Daly	Newcastle University	Newcastle, United Kingdom	AE Member
Peter	Dayan	University of Tuebingen	Tuebingen, Germany	AE Member
Wouter W.	de Herder	Erasmus Medical Center	Rotterdam, The Netherlands	AE Member
Stefano	Del Prato	Sant'Anna School of Advanced Studies	Pisa, Italy	AE Member
Dobromir	Dobrev	University Duisburg-Essen	Duisburg-Essen, Germany	AE Member
Maria	Dorobantu	University of Medicine and Pharmacy "Carol Davila" Bucharest	Bucharest, Romania	AE Member
Margaret	Esiri	Oxford University	Oxford, United Kingdom	AE Member
Bart	Fausser	UMC Utrecht	Utrecht, The Netherlands	AE Member
Peter	Ferdinandy	Semmelweis University	Budapest, Hungary	AE Member, Editor-in-Chief of British Journal of Pharmacology
Gerasimos	Filippatos	Athens University Hospital Attikon	Athen, Greece	AE Member
Rebecca	Fitzgerald	University of Cambridge	Cambridge, United Kingdom	AE Member
Roberto	Gambari	University of Ferrara	Ferrara, Italy	AE Member
Arnold	Ganser	Hannover Medical School	Hannover, Germany	AE Member
Helen	Giamarellou	Hygeia General Hospital, Marousi	Athens, Greece	AE Member
Vivette	Glover	Imperial College London	London, United Kingdom	AE Member
Andrzej	Grzybowski	University of Warmia and Mazury	Olsztyn, Poland	AE Member
Balazs	Gulyas	Hungarian Research Network	Budapest, Hungary	AE Member
Peter	Hegyi	Semmelweis University Center for Translational Medicine (CTM)	Budapest, Hungary	AE Member, Director of CTM
Joensuu	Heikki	Helsinki University Hospital & University of Helsinki	Helsinki, Finland	AE Member
Pancras C. W.	Hogendoorn	Leiden University Medical Center	Leiden, The Netherlands	AE Member
Peter	Holzer	Medical University of Graz	Graz, Austria	AE Member
Hilleke	Hulshoff Pol	Utrecht University	Utrecht, The Netherlands	AE Member
Gabor	Juhász	Eotvos Lorand University	Budapest, Hungary	AE Member
Jaakko	Kaprio	University of Helsinki	Helsinki, Finland	AE Member
Eva	Kondorosi	Biological Research Centre	Szeged, Hungary	AE Member
Georg	Langs	Medical University of Vienna	Wien, Austria	AE Member
CS	Lau	The University of Hong Kong	Hong Kong	AE Member
Jeffrey C.	Laurence	Weill Cornell Medical College	New York, United States	Editor-in-Chief of Translational Research
Francesca	Levi-Schaffer	The Hebrew University of Jerusalem	Jerusalem, Israel	AE Member
Ronan A.	Lyons	Swansea University	Swansea, United Kingdom	AE Member
Aiping	Lyu	Hong Kong Baptist University	Hong Kong SAR, China	AE Member
M. N. V. Ravi	Kumar	The University of Alabama	Alabama, United States	AE Member

Giuseppe	Mancia	Università Degli Studi di Milano-Bicocca	Milan, Italy	AE Member
Brendan	McCormack	University of Sydney	Sydney, Australia	AE Member
Iain	McInnes	University of Glasgow	Glasgow, United Kingdom	AE Member
Hugh	McKenna	Ulster University	Ulster, Ireland	AE Member
Francis	Megraud	University of Bordeaux	Bordeaux, France	AE Member
Micheline	Misrahi	Université Paris Saclay	Le Kremlin Bicêtre, France	AE Member
Godefridus J.	Peters	Vrije Universiteit Amsterdam	Amsterdam, the Netherlands	AE Member
		Medical University of Gdansk	Gdansk, Poland	
Ole H.	Petersen	Cardiff University	Cardiff, UK	AE Member
Vincent	Piguet	University of Toronto	Toronto, Canada	AE Member
		Women's College Hospital	Toronto, Canada	
Thierry	Poynard	Sorbonne University	Paris, France	AE Member
Ling	Qin	The Chinese University of Hong Kong	Hong Kong	AE Member, Editor-in-Chief of Journal of Orthopaedic Translation
Pieter	Reitsma	VarmX BV Leiden	Leiden, The Netherlands	AE Member
Gerhard	Rogler	University of Zurich	Zurich, Switzerland	AE Member
Martin	Rossor	University College London	London, United Kingdom	AE Member
Catherine	Sackley	University of Nottingham	Nottingham, United Kingdom	AE Member
Philippa	Saunders	University of Edinburgh	Edinburgh, United Kingdom	AE Member
Rainer	Schulz	Justus-Liebig-Universität	Giessen, Germany	AE Member
Matthias	Schwab	Dr. Margarete Fischer-Bosch Institute of Clinical Pharmacology	Stuttgart, Germany	AE Member
		Department of Clinical Pharmacology, University Hospital	Tubingen, Germany	
Walter	Sermeus	KU Leuven	Leuven, Belgium	AE Member
Shahrokh	Shariat	Medical University of Vienna	Wien, Austria	AE Member
Niels Erik	Skakkebæk	Rigshospitalet and University of Copenhagen	Copenhagen, Denmark	AE Member
Ewout	Steyerberg	Julius Center, University Medical Center Utrecht	Utrecht, the Netherlands	AE Member
Michael	Swash	Disciplina de Neurologia da Faculdade de Medicina de Lisboa	Lisboa, Portugal	AE Member
		Royal London Hospital, Barts and the London School of Medicine QMUL	London, UK	
Zoltan	Szekanecz	University of Debrecen	Debrecen, Hungary	AE Member
Jean Paul	Thiery	Gustave Roussy Comprehensive Cancer Center	Paris Saclay, Cancer Campus, France	AE Member
David R.	Thompson	Queen's University Belfast	Belfast, United Kingdom	AE Member
Andras	Varro	University of Szeged	Szeged, Hungary	AE Member
		Hungarian Research Network (HUN-REN SZTE)	Szeged, Hungary	
Michael	Vieth	Trier University	Trier, Germany	AE Member
Michel	Wensing	Heidelberg University	Heidelberg, Germany	AE Member
John E. L.	Wong	National University of Singapore	Singapore	AE Member
Jun	Yu	The Chinese University of Hong Kong	Hong Kong	AE Member
Mone	Zaidi	Icahn Sinai School of Medicine at Mount Sinai	New York, United States	AE Member
Reiner	Zeljko	University Hospital Center Zagreb	Zagreb, Croatia	AE Member
Alimuddin	Zumla	University College London	London, United Kingdom	AE Member
Viktoria	Barna	Semmelweis University CTM	Budapest, Hungary	CTM Member
Marie Anne	Engh	Semmelweis University CTM	Budapest, Hungary	CTM Member
Richard	Farkas	Semmelweis University CTM	Budapest, Hungary	CTM Member
Andras	Garami	University of Pecs CTM	Pecs, Hungary	CTM Member
Andrea	Harnos	Semmelweis University CTM	Budapest, Hungary	CTM Member
		University of Veterinary Medicine Budapest	Budapest, Hungary	
Rita	Nagy	Semmelweis University CTM	Budapest, Hungary	CTM Member
Mahmoud	Obeidat	Semmelweis University CTM	Budapest, Hungary	CTM Member
Anett	Rancz	Semmelweis University CTM	Budapest, Hungary	CTM Member
Brigitta	Teutsch	Semmelweis University CTM	Budapest, Hungary	CTM Member
Gabor	Varga	Semmelweis University CTM	Budapest, Hungary	CTM Member

Szilard	Vancsa	Semmelweis University CTM	Budapest, Hungary	CTM Member
Alexander S.	Wenning	Semmelweis University CTM	Budapest, Hungary	CTM Member
Annapoorna	Kuppuswamy	University of Leeds	Leeds, United Kingdom	Vice-Chair of Young Academy of Europe (YAE)
Kinga	Morsanyi	Loughborough University	Loughborough, United Kingdom	YAE Member
Katalin	Solymosi	Eotvos Lorand University	Budapest, Hungary	YAE Member