

# $^{11}\text{C}$ -glyburide PET imaging unveils the negligible brain penetration of glyburide in humans

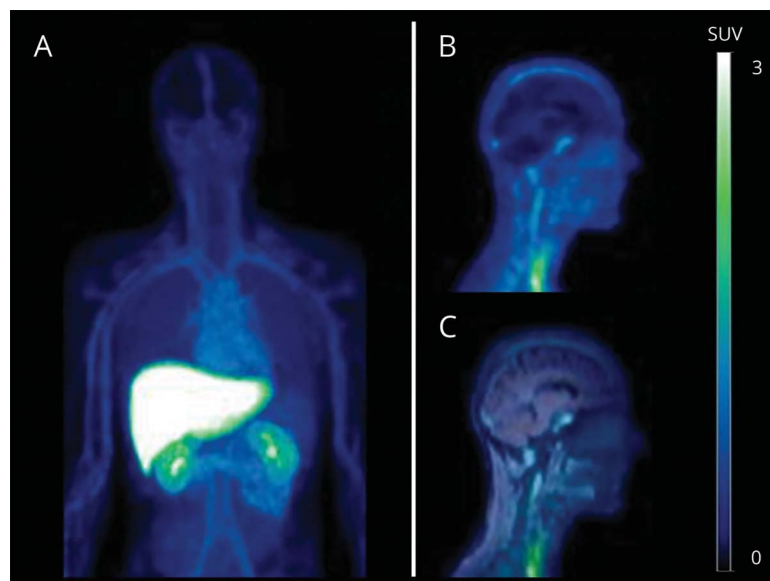
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**Figure** Biodistribution of  $^{11}\text{C}$ -glyburide



Summed PET projection (A), brain PET (B), and PET-MRI fusion (C) images obtained in a 30-year-old healthy man after IV injection of  $^{11}\text{C}$ -glyburide (60 minutes repeated whole-body scans).  $^{11}\text{C}$ -glyburide brain distribution ( $V_{T\text{-brain}} = 0.023 \text{ mL}\cdot\text{cm}^{-3}$ ) was estimated using the Logan graphical analysis and the metabolite-corrected arterial input function.

Kimberly et al.<sup>1</sup> reported the beneficial effects of IV glyburide on the clinical outcome of brain edema. We developed the carbon-11 radiolabeled analogue of glyburide to study the body distribution of this compound using PET imaging (figure, A). In a healthy person, the brain distribution of  $^{11}\text{C}$ -glyburide matched the cerebral blood volume, suggesting negligible blood–brain barrier (BBB) penetration (figure, B and C). This clinical observation corroborates preclinical findings suggesting that local changes in BBB structure and function are required for targeted delivery and favorable effects of glyburide to the injured brain tissue while minimizing potential side effects to the healthy brain.<sup>2</sup>

## Study registration

EudraCT 2017-001703-69.

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## Disclosure

The authors report no disclosures relevant to the manuscript. Go to [Neurology.org/N](http://Neurology.org/N) for full disclosures.

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## Appendix Authors

Name	Location	Role	Contribution
<b>Solène Marie, PharmD</b>	CEA/SHFJ	Author	Analyzed the data, wrote the manuscript, study supervision
<b>Claude Comtat, PhD</b>	CEA/SHFJ	Author	Major role in the acquisition of data
<b>Fabien Caillé, PhD</b>	CEA/SHFJ	Author	Radiotracer production, major role in the acquisition of data
<b>Laurent Becquemont, MD, PhD</b>	Paris Sud University	Author	Major role in the acquisition of data, revised the manuscript for intellectual content
<b>Michel Bottlaender, MD, PhD</b>	CEA/SHFJ	Author	Designed and conceptualized study, major role in the acquisition of data
<b>Nicolas Tournier, PharmD, PhD</b>	CEA/SHFJ	Author	Designed and conceptualized study, drafted the manuscript for intellectual content

## References

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