

## CORRESPONDENCE

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### Desflurane Is Not an Isomer of Isoflurane

*To the Editor:*—A recent editorial published in the Journal states that desflurane and isoflurane are isomers.<sup>1</sup> The definition of isomerism is "the possession by two or more distinct compounds of the same molecular formula, each molecule possessing an identical number of atoms of each element, but in different arrangement."<sup>2</sup> Among the halogenated inhalation anesthetics in current clinical use, the only isomers are isoflurane and enflurane. Desflurane, unlike isoflurane and enflurane, does not contain chloride. Therefore, it is misleading and incorrect to refer to desflurane as an isomer of isoflurane.

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### Where Are the Isomers?

*To the Editor:*—We read with enthusiasm the editorial, "Sympathetic Nervous System Activation and Hyperdynamic Circulation Associated with Desflurane: Not All Isomers Are Created Equal."<sup>1</sup> After further study of the context, it became clear that the so-called isomers referred to were the two fluorinated inhalational anesthetics, isoflurane and desflurane.

According to the *Van Norstrand Reinhold Encyclopedia of Chemistry*,<sup>2</sup> isomers are defined as compounds that incorporated the same elements in exactly the same numbers. The chemical composition of isoflurane is  $C_3H_2ClF_5O$ ; the composition of desflurane is  $C_3H_2F_6O$ . With different chemical composition, these compounds cannot be called isomers. The substituted moiety or function groups confer to the compounds different physical and chemical properties. Just because of the identical carbon skeleton, calling these compounds isomers and expecting to see similar properties between them is analogous to calling methane and chloroform isomers and expecting them to have similar properties.

Despite the difference in the semantics of the word "isomer," we enjoyed reading this article, marvel at the insight, and agree with the conclusion.

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