Desferal is a siderophore-based drug that is used in humans to treat iron-overload. One molecule of Desferal (molecular formula: C\textsubscript{25}H\textsubscript{48}O\textsubscript{8}N\textsubscript{6}) can bind one Fe\textsuperscript{3+} ion. A patient with an iron-overload disease had an excess of 5.34 × 10\textsuperscript{-4} M Fe\textsuperscript{3+} in her bloodstream. Assuming the patient had a total blood volume of 4.84 L, what mass of Desferal would be required to complex all of the excess Fe\textsuperscript{3+}?

As one mole of Deferal will complex one mole of Fe\textsuperscript{3+}, the number of moles of Desferal required is:

\[
\text{number of moles} = \text{concentration} \times \text{volume} = (5.34 \times 10^{-4}) \times 4.84 = 2.58 \times 10^{-3} \text{ M}
\]

The molar mass of C\textsubscript{25}H\textsubscript{48}O\textsubscript{8}N\textsubscript{6} is:

\[
(25 \times 12.01 (\text{C})) + (48 \times 1.008 (\text{H})) + (8 \times 16.00 (\text{O})) + (6 \times 14.01 (\text{N})) = 560.694
\]

Hence, the mass required is:

\[
\text{mass} = \text{number of moles} \times \text{molar mass} = (2.58 \times 10^{-3}) \times (560.694) = 1.45 \text{ g}
\]

Answer: 1.45 g