

How do the membranes sense the oxidation of cholesterol?

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Cholesterol is one of the vital components in regulating the physical properties of animal cell membranes. There are further numerous membrane proteins whose function is dependent on cholesterol. Given the importance of cholesterol in regulating cellular function, it is tempting to ask how its oxidation due to enzymes or oxygen radicals would be sensed in cells, and how these structural modifications would alter cholesterol function. In this talk, we consider these two topics on the basis of recent computer simulation studies. We discuss how oxysterols resulting from the oxidation of cholesterol affect membrane properties in a manner that is distinct from cholesterol, and how the oxidation of cholesterol alters the binding affinity for proteins that have allosteric cholesterol-specific binding sites.