

GLPbio Launches C11 BODIPY 581/591 for Diagnostic Procedures

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/EINPresswire.com/ -- One of the world's best biotech companies, [GLPbio](#) launches a therapeutic agent "[C11 BODIPY 581/591](#)" that can be used in a wide variety of diagnostic procedures including fluorescence techniques. It acts as a fluorescence probe or marker and thus can be used to determine the reactive oxygen species (ROS) at the subcellular level. Due to its ability to visualize the oxidative reactions and determine the level of lipid peroxidation along with the extent of antioxidant efficacy, it can be used to understand the pathophysiology of defective spermatozoa and of various kinds of cancers, atherosclerosis, heart, kidney, and neurodegenerative disorders.

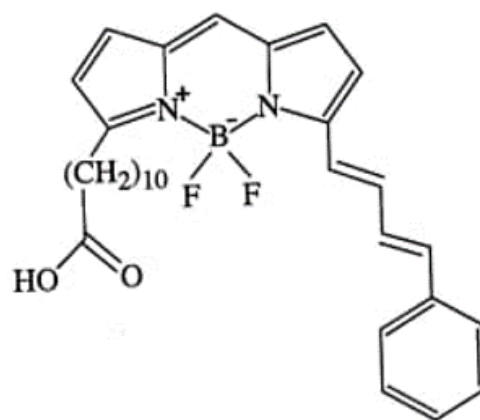


Figure: structural representation of C11 BODIPY 581/591

In the past, various studies have been conducted which give us a clue regarding the involvement of reactive oxygen species in various kinds of disorders including neurodegenerative disorders, cardiac problems, atherosclerosis, and types of hormone-independent cancers. All this happens because of the generation of the reactive oxygen species through the process of the Fenton reaction. Upon production, these ROS target the polyunsaturated fatty acids in the plasma membrane and disturb the fluidity of cells through lipid peroxidation. This leads to the release of internal cellular contents and aldehydes and alcohols, which affects the transcription process of the cell along with the changes in nucleic acid. So, the measurement of lipid peroxidation and the determination of the antioxidant enzymes and their efficacy is essential in order to determine the level of problem and visualization of the oxidative process of cells. In the past, various techniques have been used, but they have certain limitations. In order to solve the problem, GLPbio launches C11 BODIPY 581/591. It is basically a fluorescence probe or marker that has the potential to determine the extent of lipid peroxidation at the subcellular level along with the index of antioxidant efficacy. Upon determination it gives fluorescence in the form of an electromagnetic spectrum that lies in the visible range either in the oxidized form its spectrum

lies at 520nm and in the non-oxidized form, it gives fluorescence at 595nm. Along with these facts, it has several remarkable characteristics. For example, it requires a low concentration than any other type of fluorescence probe, because of its high yield and maximum signal ability. Due to its high photostability, it gives fewer artifacts. One of the major advantages of the use of C11 BODIPY 581/591 is its ability to form two pools across a lipid bilayer. All this is due to its lipophilic nature. It is somewhat sensitive to oxy-radicals but not to transition metal ions and nitrogen oxide.

Similarly, one of the studies conducted on the C11 BODIPY 581/591 stated that, it can be used to detect ferroptosis in living cells through the use of flow cytometry. It is because, ferroptosis occurs as a result of an increase in the accumulation of iron in the cells. This accumulated iron activates the lipid peroxidases that cause lipid peroxidation of the plasma membrane. These oxidative reactions lead to the initiation of several diseases. So by measuring the lipid peroxidation in these cells and determining the level of antioxidant efficacy, we can control several neurodegenerative disorders, heart, and kidney disorders, cancers, etc.

Last but not the least, studies explained the process of lipid peroxidation might be the cause of defective spermatozoa. But it is still in research. As it is clear, spermatozoa are rich in polyunsaturated fatty acids, so in contact with free radicals, these fatty acids convert into peroxy and alkoxyl. So, to get stable, they withdraw hydrogen from adjacent carbon and converted it into respective alcohols. These carbons now (free radicals) give hydrogen to react with dioxygen to form peroxides of lipids. So C11 BODIPY 581/591 can be used as a fluorescence probe to detect lipid peroxidation in defective spermatozoa and can play a greater role to understand infertility issues.

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