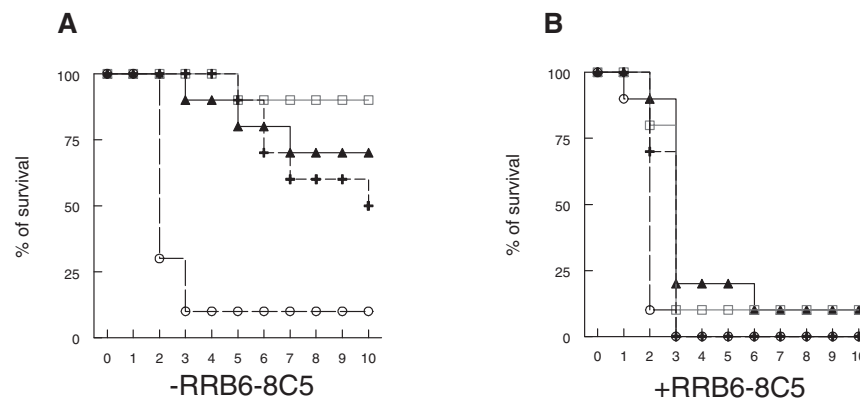


## Effect of different dietary lipids on immune response of neutropenic mice infected with *Listeria monocytogenes*

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Several studies have shown the crucial role of dietary lipids on immune system modulation and the potent action of fish oil as anti-inflammatory agent<sup>(1)</sup>. In this way, anti-inflammatory effects of fish oil justify its use in disorders characterized by overactivation of inflammatory mechanisms like autoimmune diseases. In spite of this beneficial action, the use of *n*-3 fatty acids and/or fish oil have been related to severe reduction of immune response and high susceptibility to infectious microorganisms<sup>(2)</sup>. In this context, olive oil can be considered a good alternative in some situations related to immune system deficiencies such as elderly or use of immunosuppressive drugs. In this work we have evaluated the role of different dietary lipids on *Listeria monocytogenes* sepsis in severely immunosuppressed mice, using the neutrophil depleting monoclonal antibody RB6–8C5. Balb/c mice were fed high fat diet containing fish oil (FO; 200 g/kg diet), olive oil (OO; 200 g/kg diet), organic olive oil (OOO; 200 g/kg diet) or low fat (LF) diet for 4 weeks. After the feeding period, mice were treated with RB6–8C5 or PBS (control), prior to infection with *L. monocytogenes*. Survival analysis, measurement of viable bacteria counts for spleens and livers and serum pro-inflammatory cytokine levels were carried out. Our results demonstrate that FO-rich diet worsens the response of animals to infection, especially in RB6–8C5 treated mice. All high fat diet induced alterations in cytokines secretion in response to *Listeria*. Our results may be especially relevant in clinical nutrition, for the treatment of immunosuppressed patients in risk of sepsis.



**Figure.** Measurement of survival percentage of mice fed with different dietary lipids after infection with *Listeria monocytogenes*. Mice were fed their respective diets for 4 weeks (*n* = 15 in each dietary group), treated with RB6–8C5 and infected with *L. monocytogenes* ( $10^5$  CFU per mouse). A represents data from immunocapable animals and B represents data from neutropenic animals (▲, LF; □, OO; +, OOO; ○, FO). The data represent the pooled results of three experiments and was compared using Kaplan-Meier log rang test. *P* < 0.01 in FO vs LF, OO, OOO in A and B.

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