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## 2 **Supplemental Legends**

3 **Figure S1. Effect of OA treatment on clinical parameters in EAE mice.** (A)

4 Overview of the protocol of EAE induction and OA treatment. (B) Effect on the  
5 evolution of clinical signs and body weight ( $n= 15$ , in all groups). (C) Titers of anti-  
6 MOG<sub>35-55</sub>-IgG1 antibodies were evaluated by ELISA, in serum samples from mice of  
7 the different experimental groups. Results were expressed as the mean  $\pm$  SEM,  $n=5-7$   
8 per group. \* $p<0.001$  vs control; and † $p<0.001$  vs untreated-EAE. C, healthy mice.  
9 C+OA, healthy mice treated with OA. EAE, induced mice. EAE+OA, induced-mice  
10 treated with OA.

11 **Figure S2. The effect of OA on individual SCFA concentration.** Proportions of

12 individual short-chain fatty acids (SCFAs) in cecal samples from mice of the different  
13 experimental groups. (A) Relative distribution of individual straight-Chain Fatty Acids  
14 (%), and (B) Relative distribution of individual branched-Chain Fatty Acids, (%). Bar  
15 graphs represent the mean  $\pm$  SEM of 5 animals. \* $p<0.001$  vs control; and ††† $p<0.05$  vs  
16 untreated-EAE. C, healthy mice. C+OA, healthy mice treated with OA. EAE, induced  
17 mice. EAE+OA, induced-mice treated with OA.

18 **Figure S3. OA treatment modulates inflammatory parameters in serum from EAE**

19 **mice.** Levels of the inflammatory mediators TNF $\alpha$ , IL-1 $\beta$ , IL-23, IL-17, IGF-1, GM-  
20 SCF and galectin-3 in serum samples from mice of the indicated groups were quantified  
21 by commercial ELISAs. Results were expressed as the mean  $\pm$  SEM,  $n=5-7$  per group.

22 \* $p<0.001$ , and ††† $p<0.05$  vs control; and † $p<0.001$ , †† $p<0.01$  and ††† $p<0.05$  vs

23 untreated-EAE. C, healthy mice. C+OA, healthy mice treated with OA. EAE, induced  
24 mice. EAE+OA, induced-mice treated with OA.

25 **Figure S4. Effect of iso-valeric acid treatment in intestinal epithelial cells. Caco-2**  
26 **monolayers were treated for 24 h with the indicated doses of iso-valeric acid: (A) Cell**  
27 **viability, (B) intracellular ROS production and (C) IL-8 concentration in the cell-culture**  
28 **supernatant, are shown. (D) Differentiated Caco-2 cell monolayers were treated with**  
29 **iso-valeric acid at the apical side and transepithelial electrical resistance (TEER) was**  
30 **measured at 24h. TEER values normalized to the untreated control (100%) are shown.**  
31 **The assays were performed in duplicates, n = 3. Results were expressed as the mean ±**  
32 **SEM. †p<0.001, and †††p<0.05 vs control.**

Con formato: Resaltar

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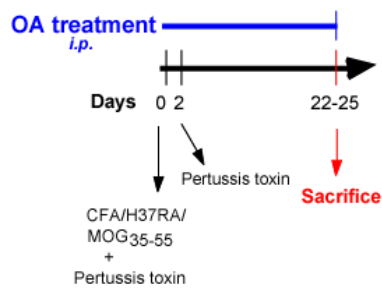
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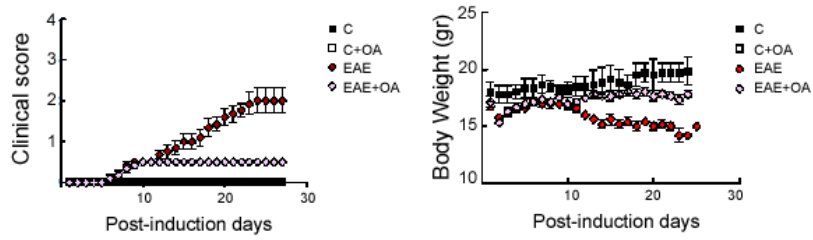
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# Figure S1

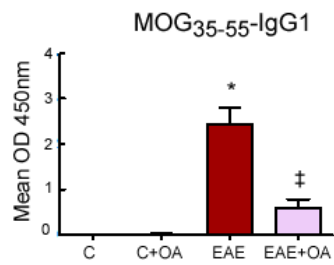
A



B



C

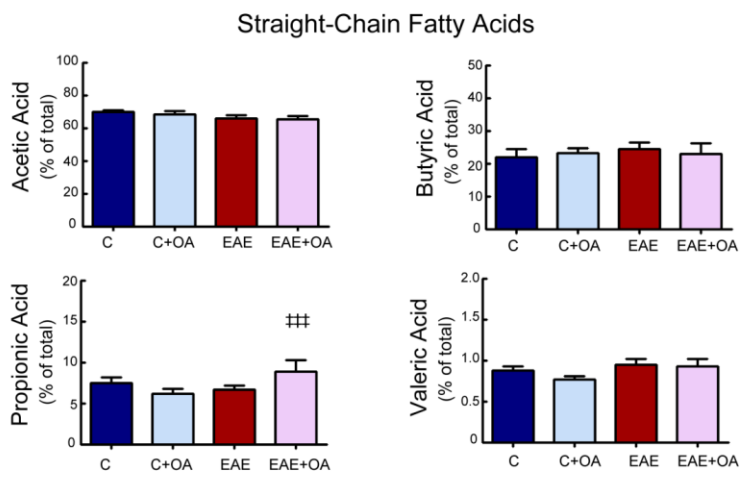


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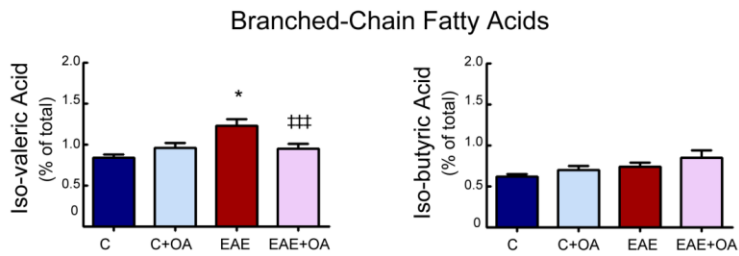
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## Figure S2

### A



### B



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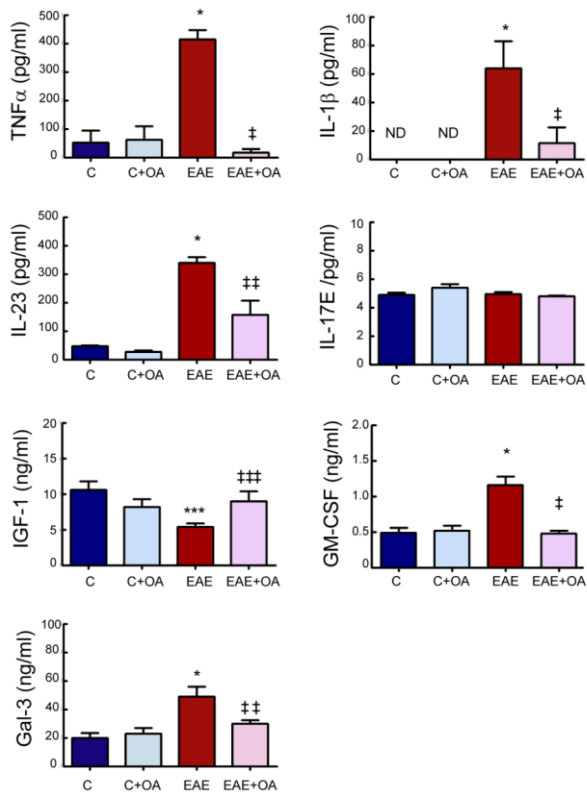
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# Figure S3

## Inflammatory Mediators

### Serum

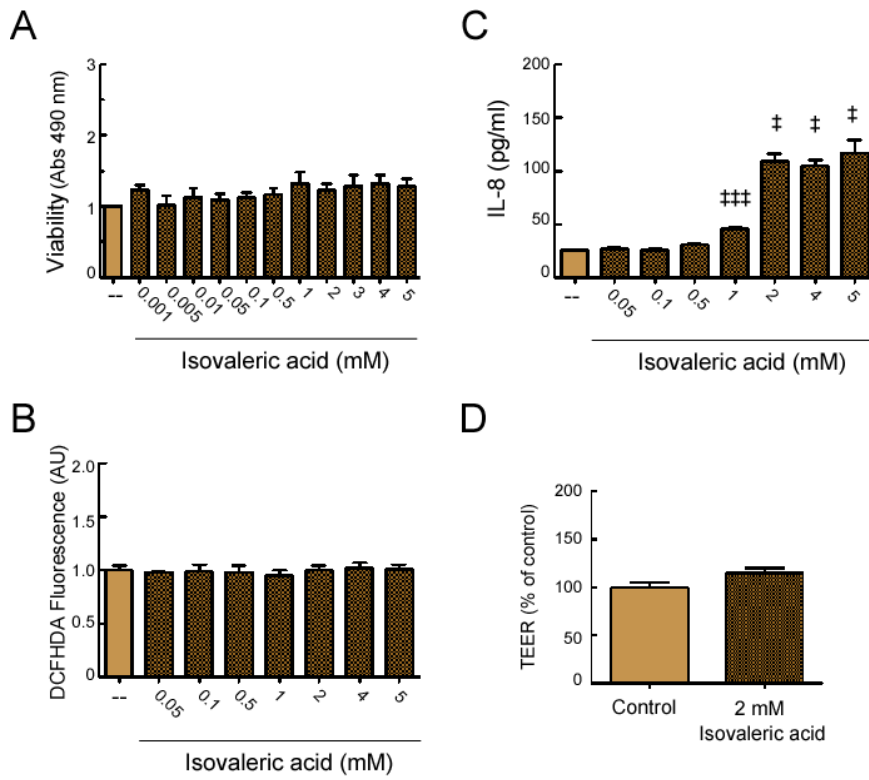


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## Figure S4



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