S1. Similar like that of *LdWT* parasites, add back parasites (*Ldp27-/-AB*, *LdCen-/-AB*) significantly abrogated the pro-inflammatory cytokines along with the up regulation of the anti-inflammatory cytokine in BMDM *in vitro* compared to live attenuated parasite infection

The pattern of pro-inflammatory cytokines (TNF-α, IFN-γ, IL-12) (S1A-C) and anti-inflammatory cytokine (IL-10) production (S1D) by BMDM infected with add back parasites was similar to those infected with *LdWT* parasites in response to LPS or r-IFNγ . These data indicate that increased pro-inflammatory response and attenuated anti-inflammatory response by *Ldp27−/−* and *LdCen1−/−* parasite infection is related to deficiency of Ldp27 and Centrin1 genes respectively.

Methods:

Cytokine enzyme-linked immunosorbent assay (ELISA):

The conditioned medium of macrophage culture after infection with *LdWT*, live attenuated and add back parasites were assayed for mouse cytokines with use of the sandwich ELISA kit (ebioscience). The assay was performed according to the manufacturer's instructions.

Figure S1

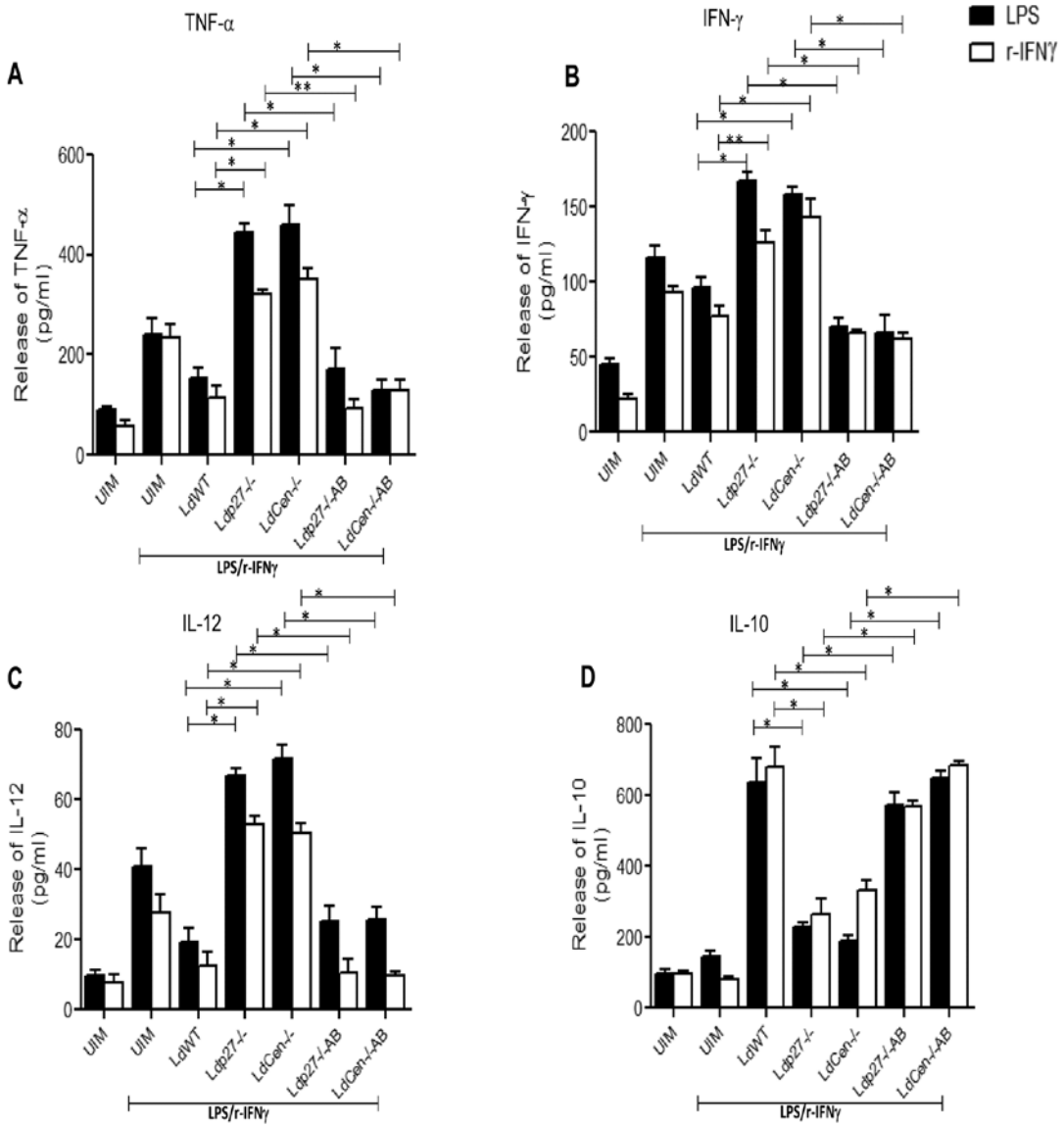
A
TNF-α
Release of TNF-α (pg/ml)
0
200
400
600
UIM
UIM
LdWT
Ldp27-/-
LdCen-/-
Ldp27-/-AB
LdCen-/-AB
LPS/r-IFNγ
B
IFN-γ
Release of IFN-γ (pg/ml)
0
50
100
150
200
LPS
r-IFNγ
C
IL-12
Release of IL-12 (pg/ml)
0
20
40
60
80
D
IL-10
Release of IL-10 (pg/ml)
0
200
400
600
800

Figure legend

S1. Similar like that of *LdWT* parasites, gene complemented add back parasites (*Ldp27-/-AB, LdCen-/-AB*) down-regulate the pro-inflammatory cytokine generation in BMDM thereby reversing the effects of live attenuated parasites (*Ldp27-/-, LdCen-/-)*

BMDM were either left uninfected or infected with opsonized *LdWT*, live attenuated parasites (*Ldp27-/-, LdCen-/-)* or gene complemented add back parasites (*Ldp27-/-AB, LdCen-/- AB*) (5:1, parasite to macrophage ratio), washed after 6h and treated with or without LPS at a dose of 1µg/ml or r-IFNγ (100U/ml) for 24h. After 24h the levels of (A) TNF-α (B) IL-12 (C) IFN-γ (D) IL-10 in the culture supernatant was evaluated by sandwich ELISA. ELISA data are expressed as means ± SD of values from triplicate experiments that yielded similar results. *P<0.05, **P<0.005.