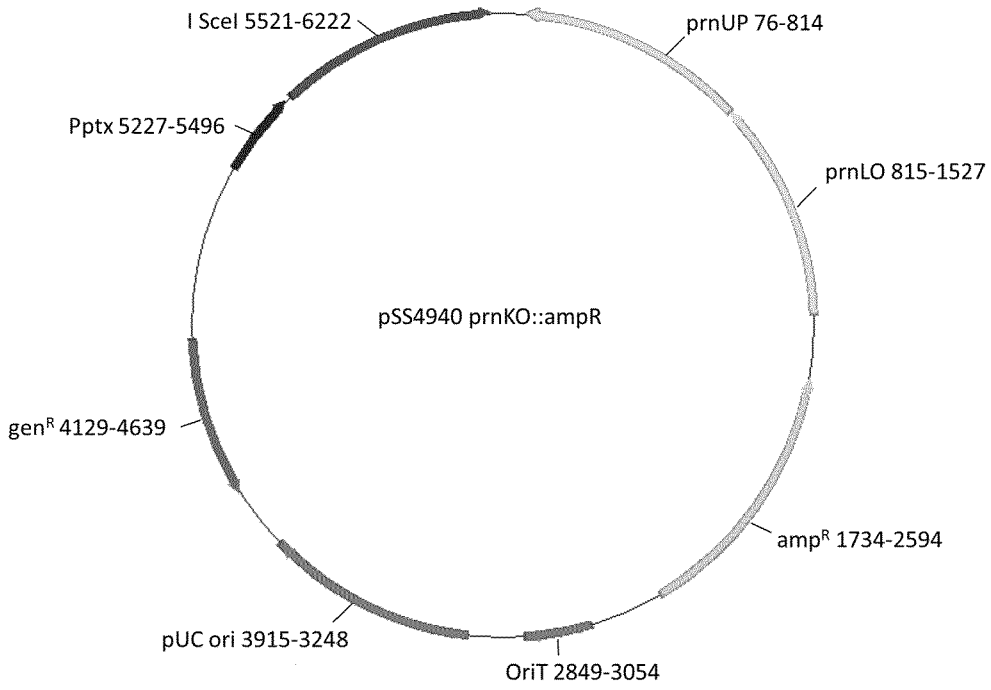
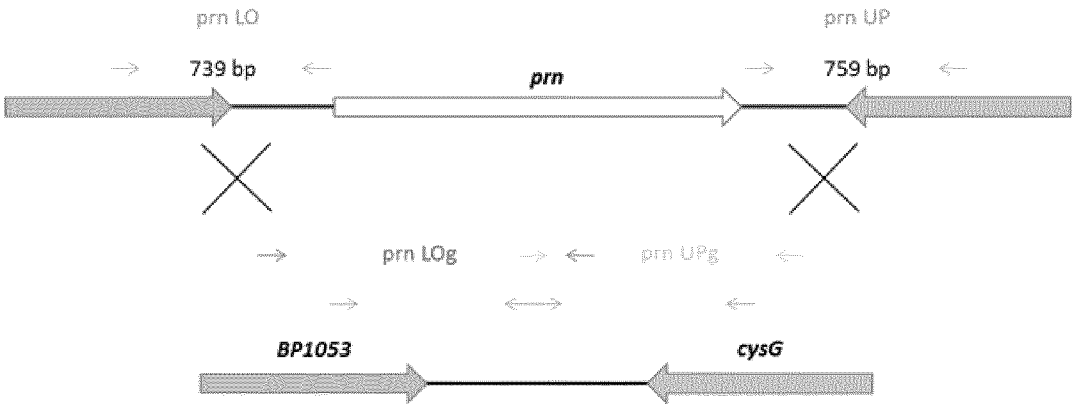
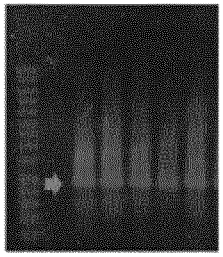

I SceI 5521-6222
prnUP 76-814
Pptx 5227-5496
prnLO 815-1527
pSS4940 prnKO::ampR
genR 4129-4639
ampR 1734-2594
pUC ori 3915-3248
OriT 2849-3054

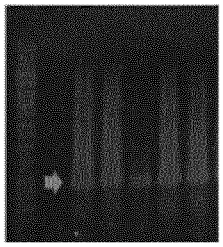
FIG. 1 A




BPZE1P construction PCR



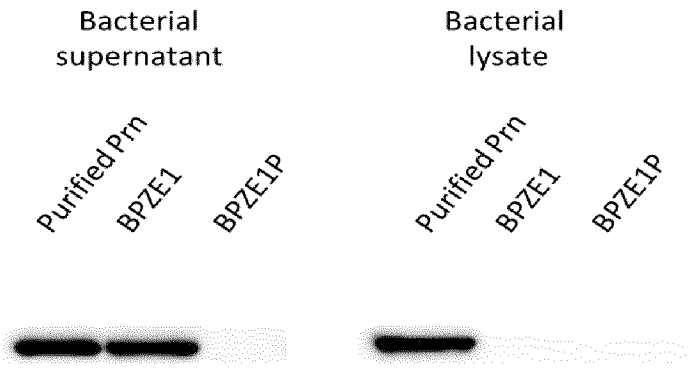
*prn* UPg PCR



*prn* LOg PCR

FIG. 1B

FIG. 1C


Bacterial supernatant
Bacterial lysate
Purified Prn
BPZE1
BPZE1P
Purified Prn
BPZE1
BPZE1P

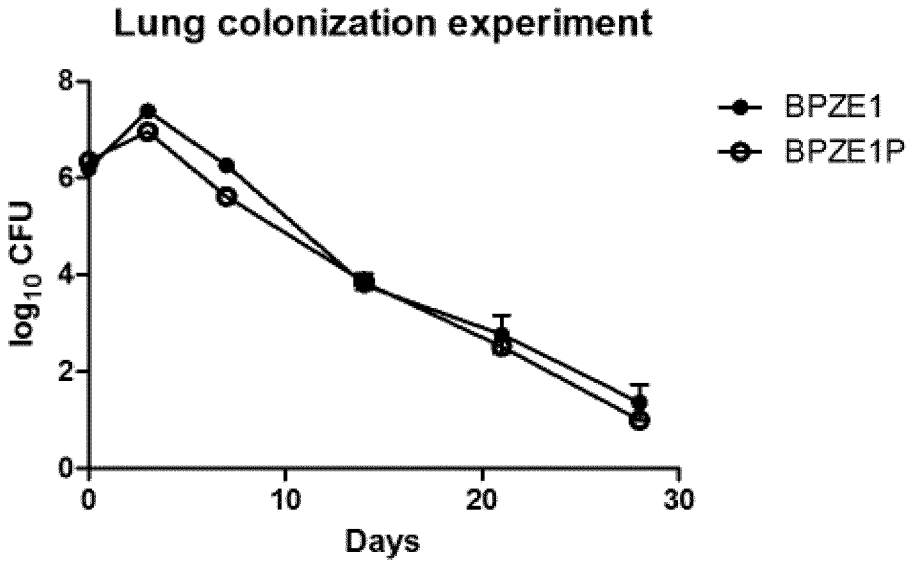

Lung colonization experiment
BPZE1
BPZE1P
log10 CFU
8
6
4
2
0
0
10
20
30
Days

FIG. 2

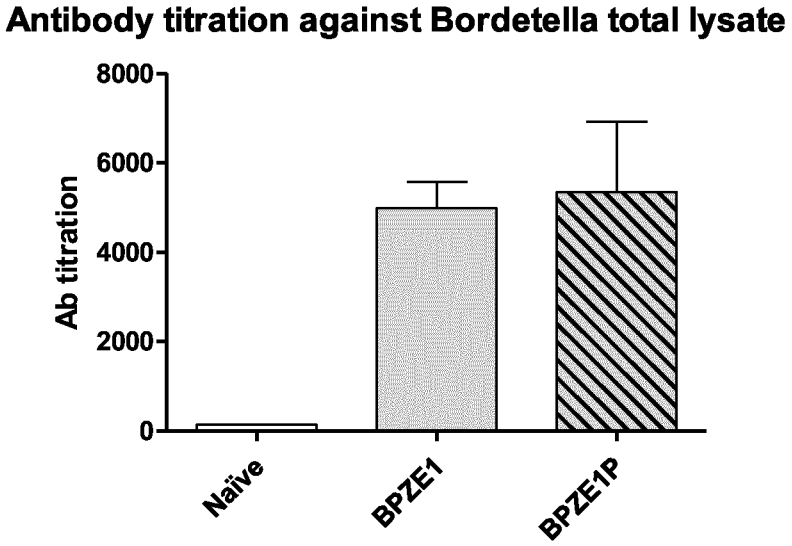

Antibody titration against Bordetella total lysate
Ab titration
8000
6000
4000
2000
0
Naïve
BPZE1
BPZE1P

FIG. 3

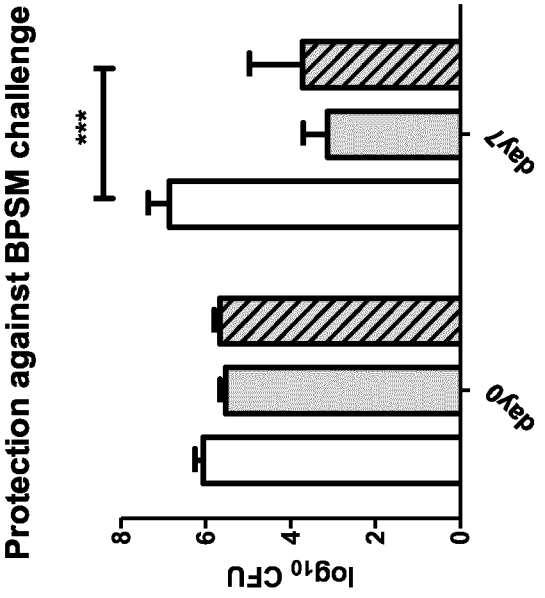



FIG.4 A

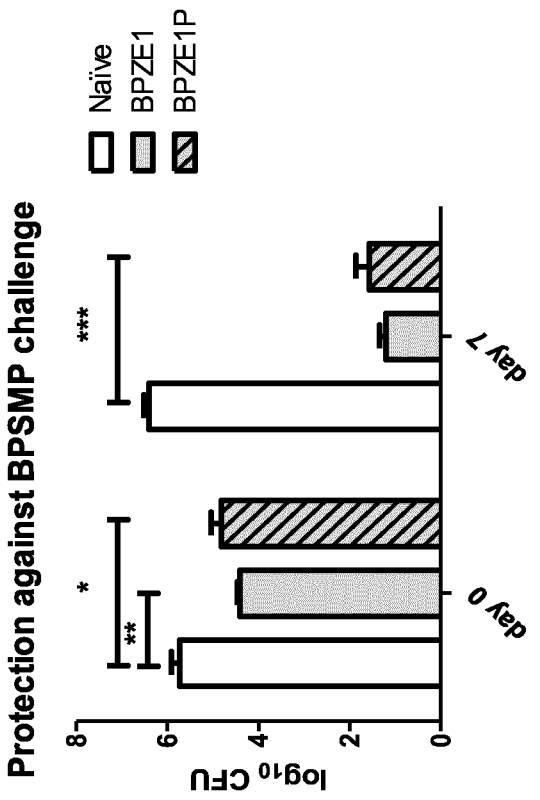



FIG. 4B

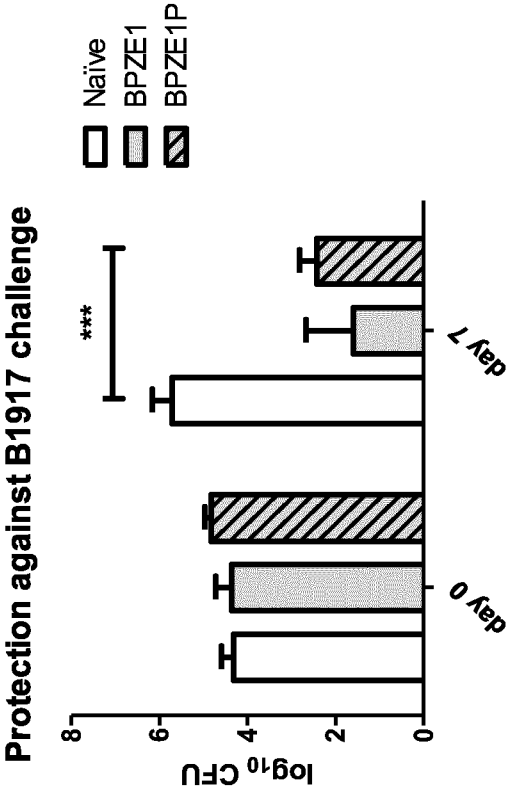



FIG. 4C

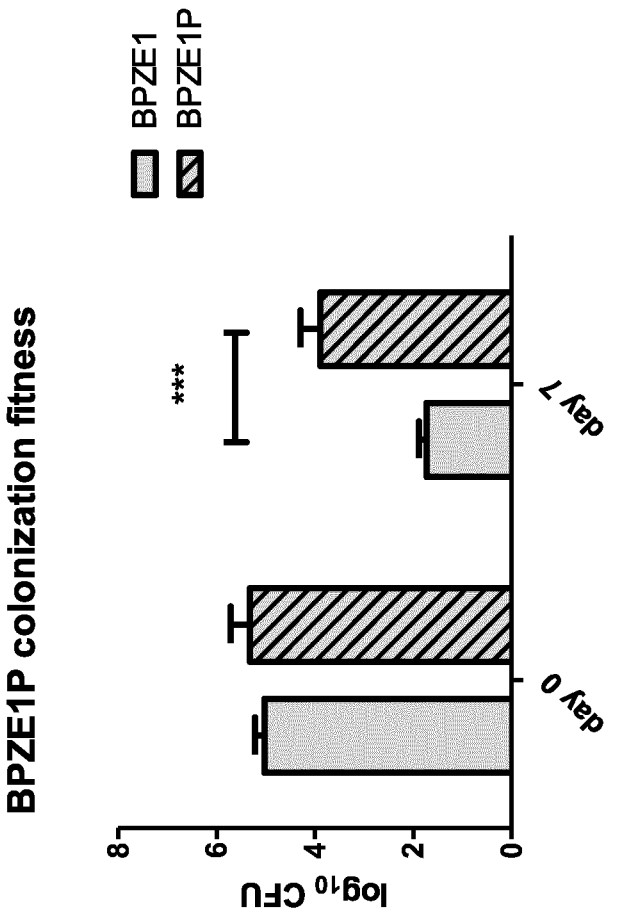

BPZE1P colonization fitness
BPZE1
BPZE1P
***
log10 CFU
0
2
4
6
8
day 0
day 7

FIG. 5

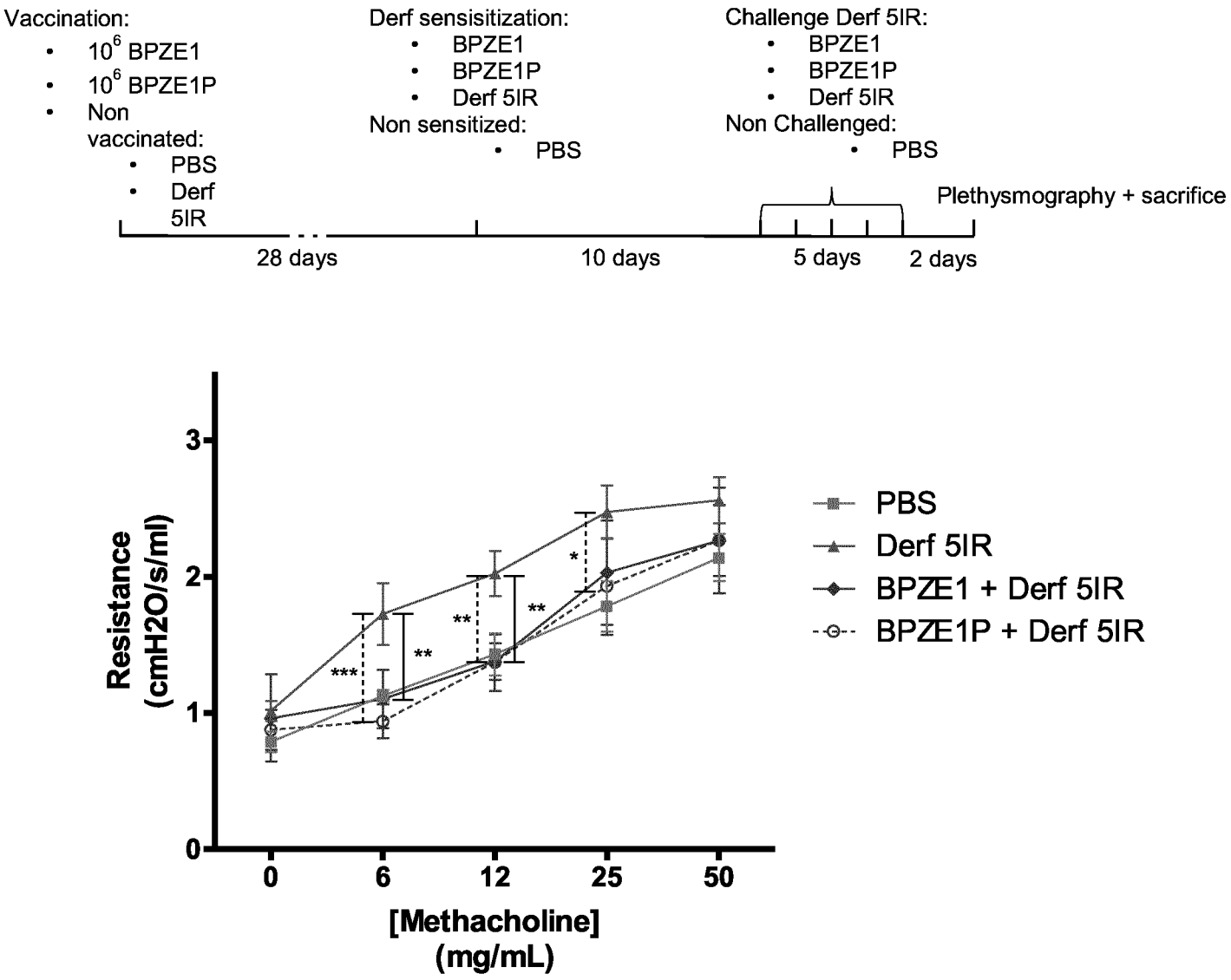

Vaccination:
• 10^6 BPZE1
• 10^6 BPZE1P
• Non vaccinated:
• PBS
• Derf 5IR
Derf sensisitization:
• BPZE1
• BPZE1P
• Derf 5IR
Non sensitized:
• PBS
Challenge Derf 5IR:
• BPZE1
• BPZE1P
• Derf 5IR
Non Challenged:
• PBS
Plethysmography + sacrifice
28 days
10 days
5 days
2 days
Resistance (cmH2O/s/ml)
[Methacholine] (mg/mL)
PBS
Derf 5IR
BPZE1 + Derf 5IR
BPZE1P + Derf 5IR

FIG. 6

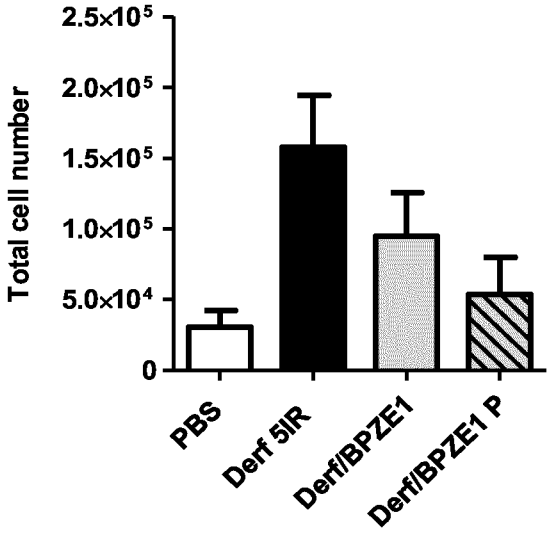



FIG. 7A

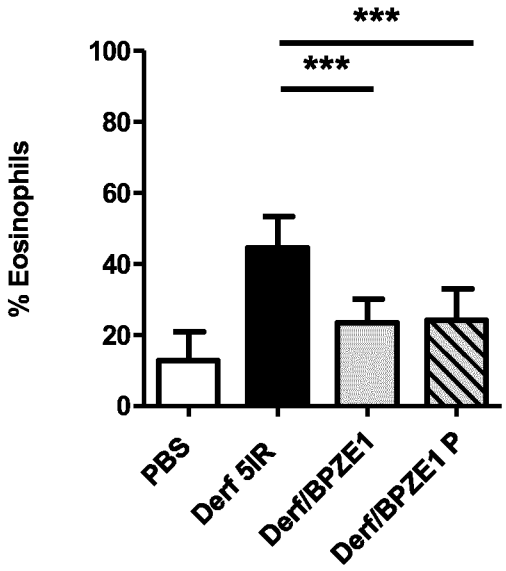



FIG. 7B

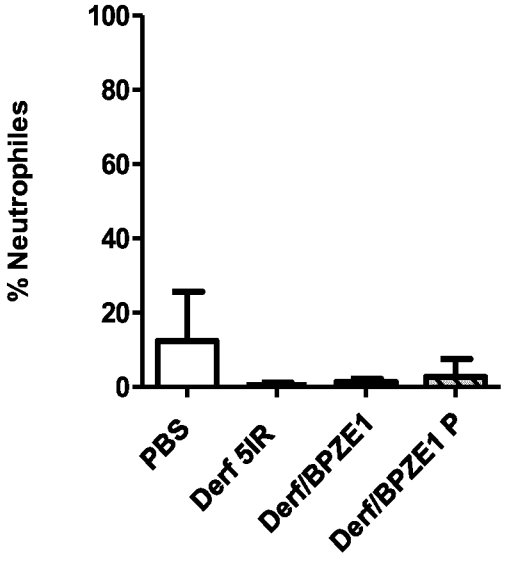



FIG. 7C

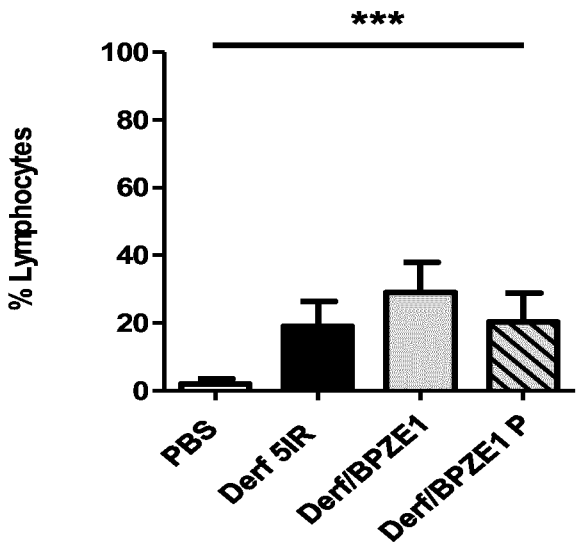



FIG. 7D

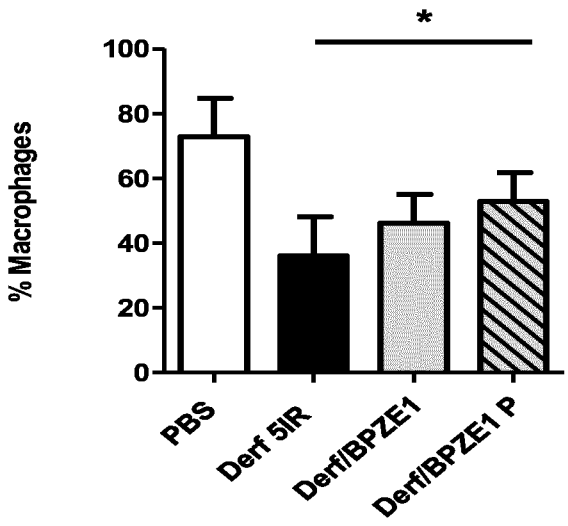

*
100
80
60
40
20
0
% Macrophages
PBS
Derf 5IR
Derf/BPZE1
Derf/BPZE1 P

FIG. 7E

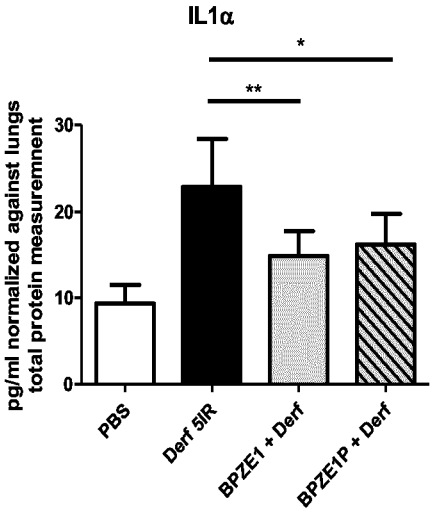



FIG. 8A

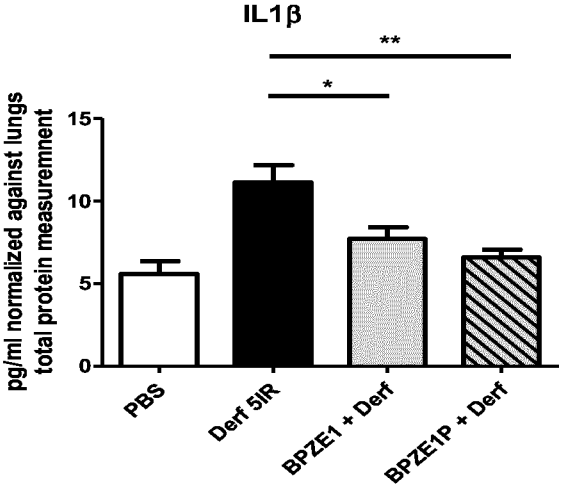



FIG. 8B

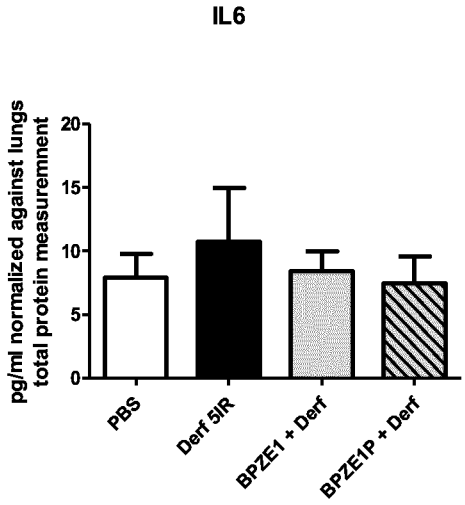



FIG. 8C

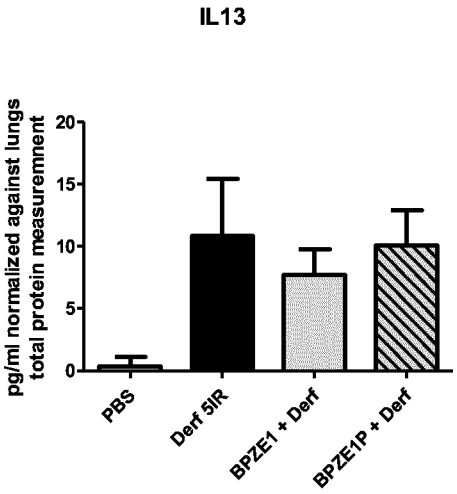



FIG. 8D

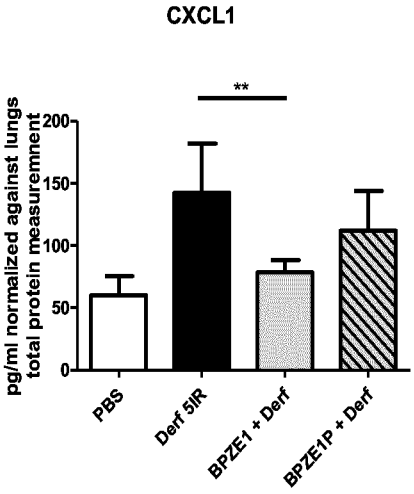



FIG.8E

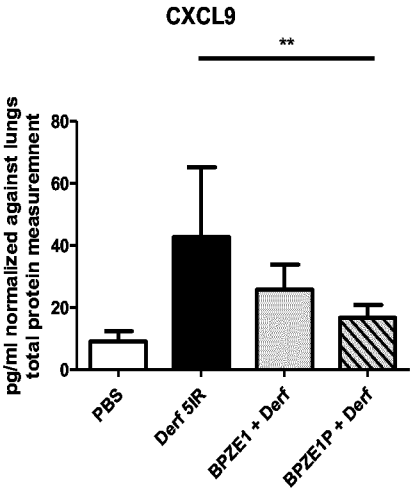



FIG. 8F

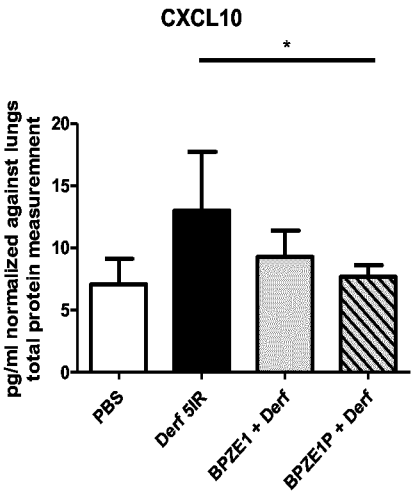



FIG. 8G

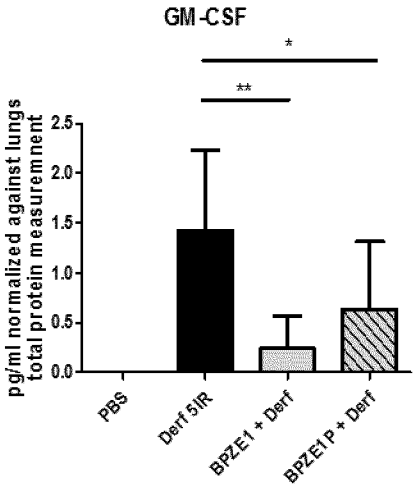
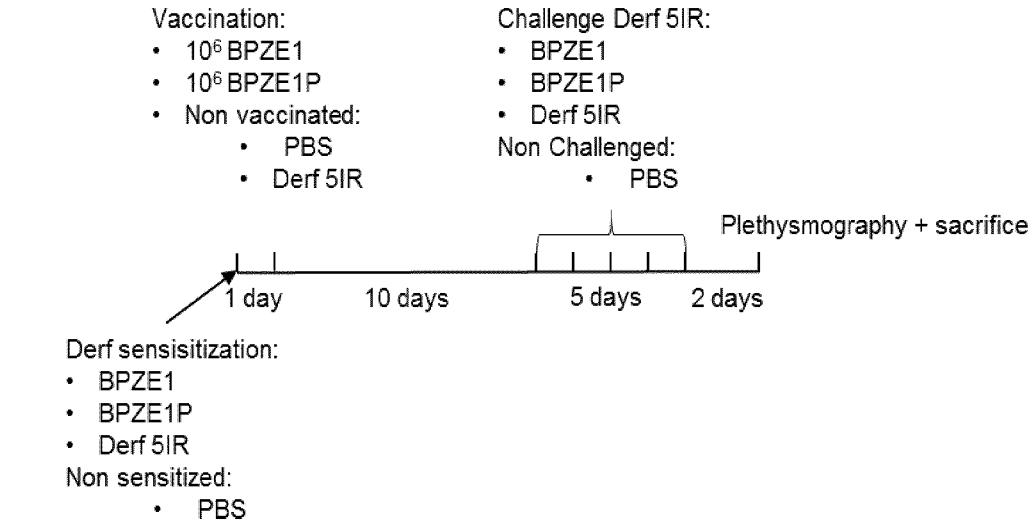



FIG. 8H


Vaccination:
• 10⁶ BPZE1
• 10⁶ BPZE1P
• Non vaccinated:
• PBS
• Derf 5IR
Challenge Derf 5IR:
• BPZE1
• BPZE1P
• Derf 5IR
Non Challenged:
• PBS
Plethysmography + sacrifice
1 day
10 days
5 days
2 days
Derf sensisitization:
• BPZE1
• BPZE1P
• Derf 5IR
Non sensitized:
• PBS

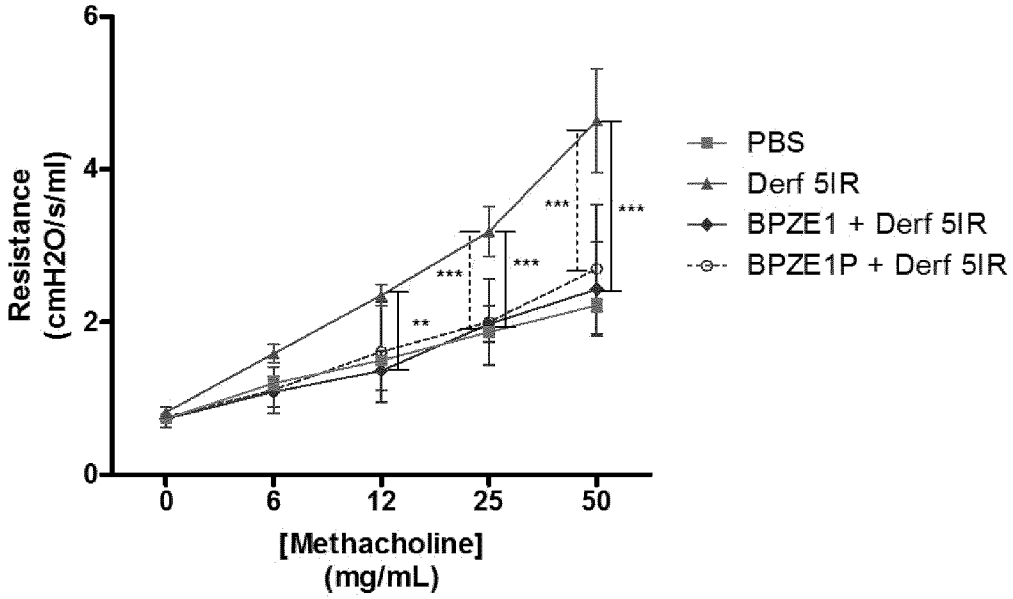

Resistance (cmH2O/s/ml)
6
4
2
0
0
6
12
25
50
[Methacholine] (mg/mL)
**
***
***
***
***
PBS
Derf 5IR
BPZE1 + Derf 5IR
BPZE1P + Derf 5IR

FIG. 9