

## رویکردی جدید در درمان بیماری دیابت خودایمن وابسته به انسولین با استفاده از سلول‌های دندریتیک تیمار شده با اینترلوکین ۱۰ (IL-10)

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### چکیده

مقدمه:

T

(DCs)

T

IL-4 GM-CSF

LPS IL-10

روش‌ها:

T

IL-10

MHC class II

(P < / )

) LPS

یافته‌ها:

T

IL-10

(P < / )

IFN- $\gamma$

IL-10

IL-10

نتیجه‌گیری:

IL-10

واژگان کلیدی:

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مقدمه

(IL-10)

IL-12 IL-10  $\beta$  T

Th2 IL-10 T

IL-10 T [ ]

T [ ] T

T [ ] A [ ]

IL-10 IL-10 [ ]

IL-10 (DC)

IDDM [ ] T

روش‌ها

C57BL/6 T

(LPS)

% RPMI (Gibco) CpG DNA TNF- $\alpha$

$\mu$ g/ml (Gibco) U/ml FBS (Gibco) CD40 CD40 IFN- $\gamma$

(Sigma) (Gibco)

mrTNF- $\alpha$  (Bender mrIL-4(R&D) mrGM-CSF(R&D) [ ]

mrIL-10 (Bender Med) Med T

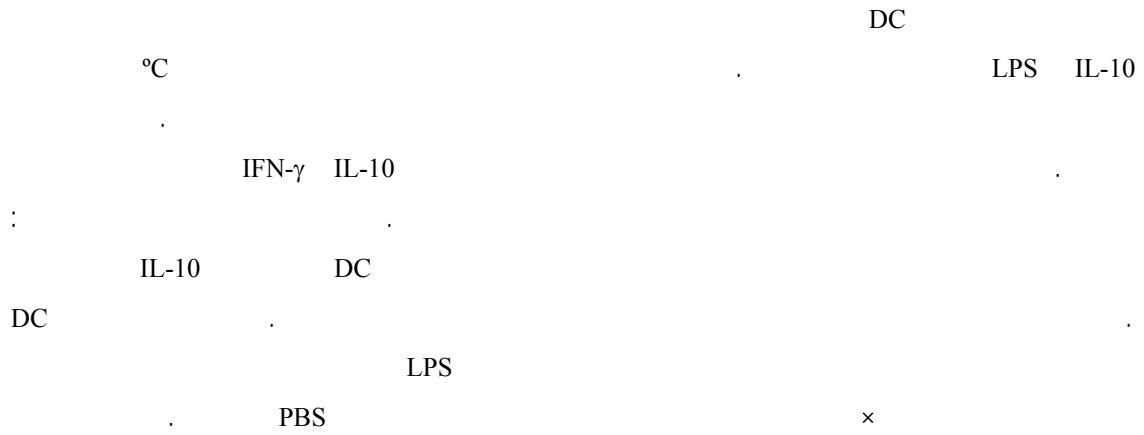
antiCD11c(PE-conjugated) IL-12

anti CD11b(FITC-conjugated) Th2 Th1

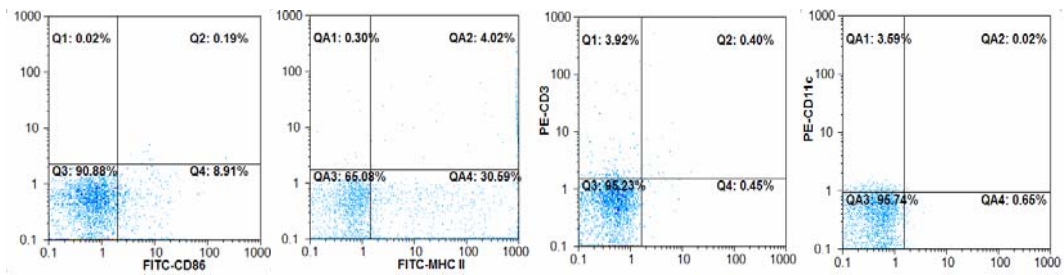
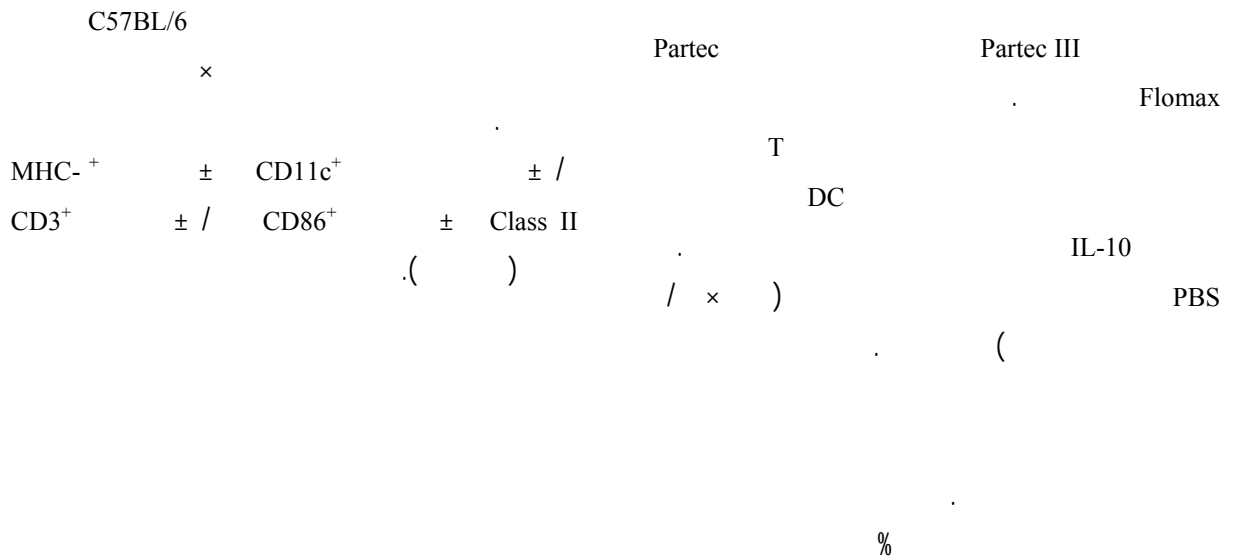
anti CD8 $\alpha$ (PE-conjugated) [ ]

anti-

Haase anti CD40(PE- MHC class II I-A<sup>E</sup>(FITC-conjugated)  
 U/ml [ ] anti CD86(PE-conjugated) conjugated)  
 anti-CD3(PE-  
 % T conjugated)  
 IL-10 BD Biosciences  
 CO<sub>2</sub> %  
 ( ) LPS  
 DC  
 % /  
 g  
 % cc  
 Polyinosinic-Polycytidylic acid mm PBS  
 (poly I/C) cc  
 Insulin 2B chain  
 peptide B: 9-23(SHLVEALYLVCGERG) / cc  
 µg/ml (Flush out)  
 g  
 DCs )  
 T × ( RPMI  
 DC DC  
 (DC2 DC1)  
 MHC-II CD11c DCs U/ml cm<sup>2</sup>  
 CD86 rmIL-4 u/ml rmGM-CSF  
 IL-10 CD40 % CO<sub>2</sub> °C  
 LPS  
 CD11b CD8α %  
 CD8α  
 DC DC  
 DC DC  
 DC CD11b

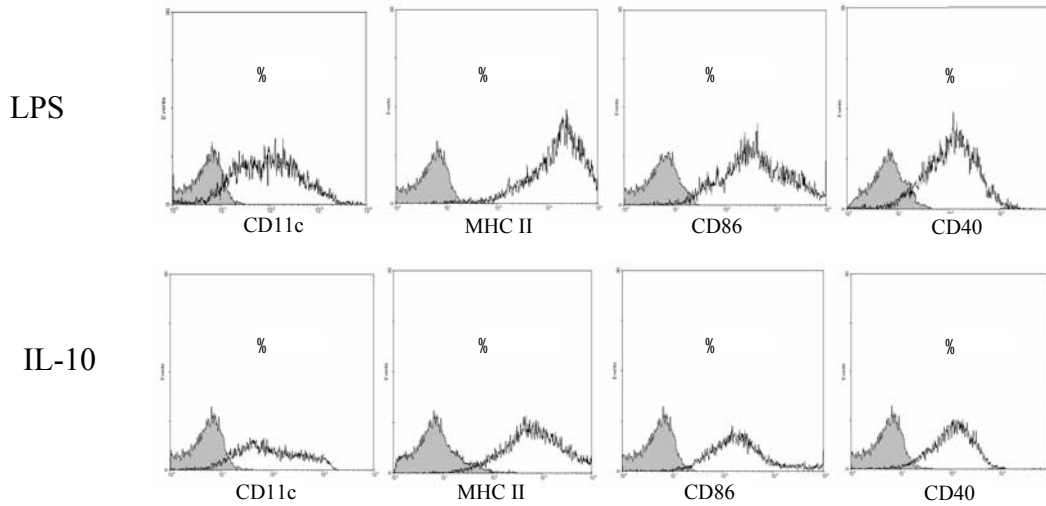


**یافته ها**

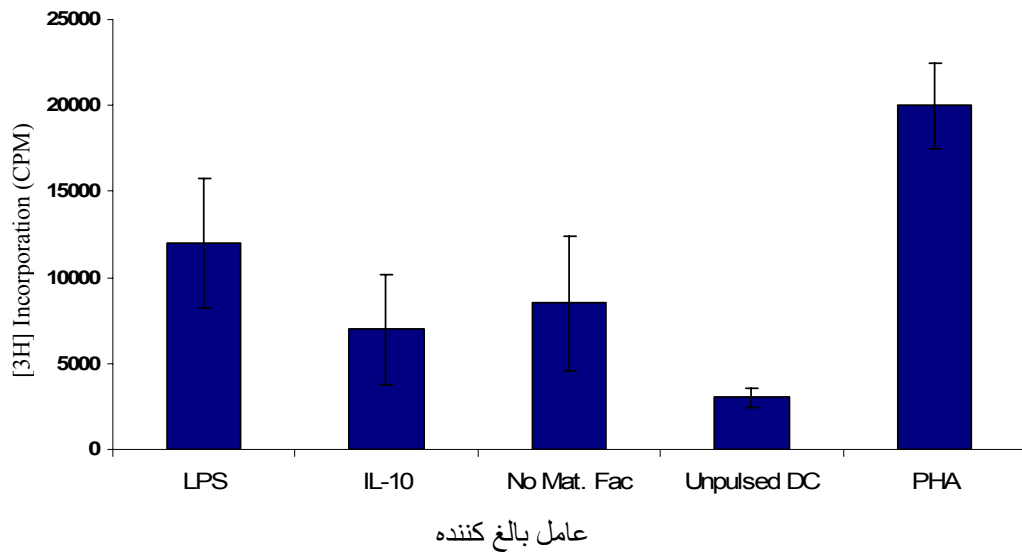


نمودار ۱- نمونه ای از نمودارهای حاصل از آنالیز فلوسیتومتری سلولهای بدست آمده از مغز استخوان

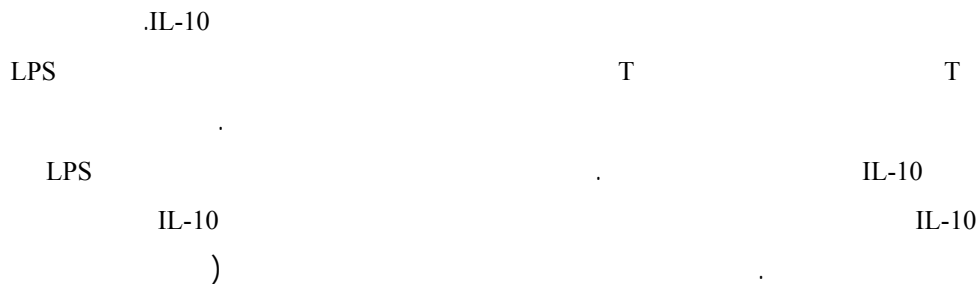
$\% \pm$  MHC ClassII<sup>+</sup>  
 $\% \pm$  CD40<sup>+</sup>  $\% \pm$  CD86<sup>+</sup> CD11c<sup>+</sup>  $\pm$   
 CD86 MHC class II IL-10  
 LPS ) CD11c<sup>+</sup>  
 (P= / )  
 .( ) MHC  $\% \pm$   
 IL-10 . CD40<sup>+</sup>  $\% \pm$  CD86<sup>+</sup>  $\% \pm$  ClassII<sup>+</sup>  
 C11c<sup>+</sup> CD8 $\alpha$   
 IL-10 LPS (DC2) CD11b  
 .( )  
*In vivo*  
 IL-10 Th2  
 IL-10  
*In vivo* IL-10 LPS  
 LPS  
 $\% \pm$   
 T  $\% \pm$   
 IL-10 MHC  $\% \pm$  LPS  
 ( SD= ) CPM  $\% \pm$  CD86<sup>+</sup>  $\% \pm$  ClassII<sup>+</sup>  
 LPS MHC ClassII . CD40<sup>+</sup>  
 ( SD= ) CPM  
 IL-10 MFI  
 IL-10 (P= / )  
 T  
 T IL-10 MHC ClassII  
 .( )  
 IL-10  
 .( )  $\% \pm$   
 LPS  $\% \pm$



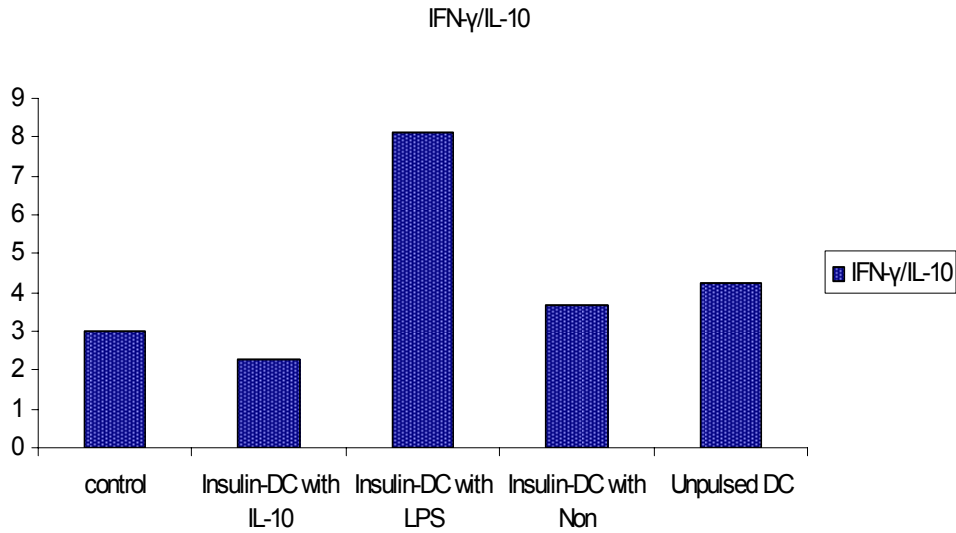
نمودار ۲- میزان بروز هر یک از شاخص‌های بلوغ بر روی سلول‌های دندریتیک بعد از اضافه نمودن عوامل بلوغ. نمودارهای خاکستری مربوط به ایزوتیپ کنترل هر یک از شاخص‌ها بر روی سلول‌های مورد مطالعه می‌باشد.



نمودار ۳- میزان تکثیر سلول‌های T در مواجهه با آنتی‌ژن در آزمون سنجش تکثیر سلول‌های T در گروه‌های مختلف سلول‌های دندریتیک تیمار شده با IL-10 و LPS گروه No Mat. Fac مربوط به سلول‌های دندریتیک است که هیچ عامل بالغ کننده‌ای دریافت نکرده‌اند و unpulsed DC مربوط به گروهی است که با پپتید انسولین بارگذاری نشده‌اند.



IL- Th2 (P < / ) IFN-γ/IL-10 (P < / )  
 10  
 .( ) LPS



نمودار ۴- نسبت ساینوکین‌های IFNγ/IL10 تولید شده توسط لنفوسیت‌های T در گروه‌های مورد مطالعه تزریق شده توسط سلول‌های دندریتیکی که به صورت‌های متفاوتی تیمار شده اند.

بحث

GM-CSF + IL-3 + IL- DC  
 .[ ] Th2 T 4 DC T  
 DC T DC . T  
 T IL-10 β<sub>2</sub>  
 Th2 CD58 CD50, CD54, CD2, β<sub>1</sub>  
 CD40L IL-12P70 T .[ ]  
 Kalinski.[ ]  
 IL-12 IL-12 IL-1, IL-6  
 .[ ] Th2 Th1 .[ ]  
 IL-10 IFN-γ, PGE<sub>2</sub>  
 Th2 Th1  
 DC  
 GM-CSF + IL-3 + IFN-γ  
 DC IL-12  
 IFN-γ  
 Th1 T  
 IL-10 .[ ]  
 [ ] NK

[ ] Dhodapkar  
 IL-10 DC  
 . T<sub>reg</sub> *In vivo*  
 IL-10 . [ ]  
 T<sub>reg</sub> T<sub>reg</sub>  
 DC  
 . [ ] T<sub>reg</sub>  
 .  
 NOD IL-10  
 (CD25<sup>+</sup>CD4<sup>+</sup>) T<sub>reg</sub>  
 [ ] IL-10 . [ ]  
 IL-10  
 CD4<sup>+</sup>T  
 T *Ex vivo* . [ ]  
 DC [ ] Steinbrink  
 T<sub>reg</sub> GM-CSF IL-4  
 IL-10  
 DC  
 DC CD8<sup>+</sup>T  
 Papaccio . IL-10  
 HCG  
 Th2  
 NOD IL-10  
 . [ ] B7-1/-2 MHCII  
 IL-10 (ICAM-1)  
 DC IL-10 . [ ]  
 Th2 T  
 IL-1, IL-6, IL-8, TNF- $\alpha$   
 . [ ] GM-CSF  
 BB NOD  
 DC  
 IL-10 IL-10  
 IL-10 [ ] Th2  
*In vitro* DC  
 . [ ]



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