# IL-34 Induces the Differentiation of Human Monocytes into Immunosuppressive Macrophages. Antagonistic Effects of GM-CSF and IFNγ



| | |
|---|---|
| Titre | IL-34 Induces the Differentiation of Human Monocytes into Immunosuppressive Macrophages. Antagonistic Effects of GM-CSF and IFNγ |
| Type de publication | Article de revue |
| Auteur | Foucher, Etienne D. [1], Blanchard, Simon [2], Preisser, Laurence [3], Garo, Erwan [4], Ifrah, Norbert [5], Guardiola, Philippe [6], Delneste, Yves [7], Jeannin, Pascale [8] |
| Editeur | Public Library of Science |
| Type | Article scientifique dans une revue à comité de lecture |
| Année | 2013 |
| Langue | Anglais |
| Date | 2013/02/08 |
| Numéro | 2 |
| Volume | 8 |
| Titre de la revue | PLoS ONE |
| Résumé en anglais | IL-34 is a recently identified cytokine that signals via the M-CSF receptor and promotes monocyte survival. Depending on the environment, monocytes can differentiate into macrophages (Mφ) or dendritic cells (DC). A wide spectrum of Mφ and DC subsets, with distinct phenotypes and functions, has been described. To date, the phenotype of monocytes exposed to IL-34 remains unexplored. We report here that IL-34 induces the differentiation of monocytes into CD14high CD163high CD1a− Mφ (IL-34-Mφ). Upon LPS stimulation, IL-34-Mφ exhibit an IL-10high IL-12low M2 profile and express low levels of the costimulatory molecules CD80 and CD86. IL-34-Mφ exhibit poor T cell costimulatory properties, and have potent immunosuppressive properties (decrease of TCR-stimulated T cell proliferation). For all the parameters analyzed, IL-34-Mφ are phenotypically and functionally similar to M-CSF-Mφ. IL-34 appears as efficient as M-CSF in inducing the generation of immunosuppressive Mφ. Moreover, the generation of IL-34-Mφ is mediated through the M-CSF receptor, is independent of endogenous M-CSF consumption and is potentiated by IL-6. In an attempt to identify strategies to prevent a deleterious M2 cell accumulation in some pathological situations, we observed that IFNγ and GM-CSF prevent the generation of immunosuppressive Mφ induced by IL-34. IFNγ also switches established IL-34-Mφ into immunostimulatory Mφ. In conclusion, we demonstrate that IL-34 drives the differentiation of monocytes into immunosuppressive M2, in a manner similar to M-CSF, and that IFNγ and GM-CSF prevent this effect. |
| URL de la notice | http://okina.univ-angers.fr/publications/ua9195 [9] |
| DOI | 10.1371/journal.pone.0056045 [10] |

| | |
|---|---|
| Lien vers le document | http://dx.doi.org/10.1371/journal.pone.0056045 [10] |

**Liens**
[1] http://okina.univ-angers.fr/e.foucher/publications
[2] http://okina.univ-angers.fr/si.bla/publications
[3] http://okina.univ-angers.fr/laurence.preisser/publications
[4] http://okina.univ-angers.fr/publications?f[author]=7900
[5] http://okina.univ-angers.fr/no.ifrah/publications
[6] http://okina.univ-angers.fr/philippe.guardiola/publications
[7] http://okina.univ-angers.fr/publications?f[author]=3873
[8] http://okina.univ-angers.fr/pascale.jeannin/publications
[9] http://okina.univ-angers.fr/publications/ua9195
[10] http://dx.doi.org/10.1371/journal.pone.0056045