Tolerogenic Dendritic Cells as a cell therapy to prevent chronic rejection in kidney transplantation

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Methodology
The methodology consisted of a bibliographic search in Pubmed and GoogleScholar databases and immunology journals including Nature Reviews Immunology, Annual Review of Immunology, Nature Immunology, Trends in Immunology.
- The data was extensively analysed and contrasted.
- The main keywords used were, “chronic rejection”, “kidney transplantation”, “immune tolerance”, “dendritic cells”, “Tolerogenic dendritic cells”.

Immunological phases of renal transplant rejection

- **Innate response caused by reperfusion injury or infection**
- **Direct allorecognition**
  - Main pathway underlying acute rejection (days-months)
  - Main pathway underlying chronic rejection (months-years)
- **Indirect allorecognition**
- **Maintenance phase**
  - Long-term administration
  - Susceptibility to infections and cancer (lack of specificity)
  - Does not avoid CR

State-of-the-art immunosuppression therapy for kidney transplantation

- **Long-term administration**
- **Sustained**
- **Susceptibility to infections and cancer (lack of specificity)**
- **Does not avoid CR**

Conclusions
- ToluDC have demonstrated their therapeutic potential in transplantation, but we are still at the early beginnings of a highly promising therapy.
- Safe and efficient ToluDC therapy would highly reduce the dependence on IS drugs, thus minimizing the incidence of infections and malignancies and improving long-term kidney graft survival.
- The main limitation of ToluDC therapy is the lack of consensus regarding the optimal protocol for ex vivo generation. Further analysis of ToluDC protocols and mechanisms of tolerance will improve the potential of ToluDC in transplantation.

Main bibliography: