



# MYCOPHENOLATE MOFETIL

<http://www.aocd.org>

Mycophenolate mofetil (MMF, brand name **CellCept**) is a lymphocytic selective immunosuppressive medication commonly used in patients receiving organ transplants. When administered orally or intravenously, MMF is immediately converted to its active form mycophenolic acid. Although immunosuppression may be necessary in certain medical conditions it also weakens the immune system and increases the risk of serious infections.

**Mechanism:** As an immunosuppressant agent, MMF selectively inhibits an enzyme known as inosine monophosphate dehydrogenase (IMPD). This complex is involved in the early stages of DNA and RNA building block synthesis. Since B and T lymphocytes rely almost exclusively on IMPD for the production of these precursors, they are preferentially affected while other cell lines remain unaltered. In doing so, B and T lymphocytes cannot manufacture sufficient quantities of DNA, RNA, and proteins to function normally. Furthermore, MMF prevents the recruitment of these white blood cells into areas of inflammation by blocking the expression of specific cellular signals. This too adds to a decreased ability to fight infections and thereby causes immune suppression.

**Uses:** The usage of MMF in dermatology is becoming more common especially in the area of inflammatory skin disorders. This is partly related to its steroid-sparing effect and lack of significant toxicity. Currently, MMF is highly utilized in two major clinical situations. First, it is used in patients who cannot tolerate side effects from other medications or drug interactions that worsen concomitant diseases. Patients who have been on chronic or long-term steroid use are excellent candidates. Secondly, MMF is used for patients who have refractory skin conditions not responsive to traditional therapy.

Specific dermatologic disorders that may be treated with MMF include but are not limited to:

- Autoimmune blistering diseases like **pemphigus vulgaris**
- **Atopic dermatitis**, moderate to severe cases
- Connective tissue disorders like **dermatomyositis** and **lupus erythematosus**
- **Psoriasis**
- **Lichen planus**

**Side effects:** MMF is typically well tolerated with a low side effect profile compared to other immunosuppressants. MMF has a lower incidence of hepatotoxicity, nephrotoxicity and neurotoxicity. The most common reported side effects are gastrointestinal in nature -- diarrhea, nausea, vomiting and abdominal pain. Other frequent side effects include high blood sugars, high cholesterol and other electrolyte imbalances. Many of these side effects are dose related and are reversible with discontinuation. As mentioned earlier, since MMF is an immunosuppressant, the incident of serious opportunistic infections is higher than in the general public. Finally, as with all immune suppressants, there is a small but serious risk for developing cancer. Most cases of malignancy (usually lymphoma) associated with MMF were transplant patients on chronic immunosuppression with multiple agents. Therefore, the lymphoma-associated risk has not been directly linked to MMF but likely to combination immunosuppression. Overall MMF has an excellent safety record, is efficacious and is being used more frequently in the field of dermatology.

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