# UCMC – Liver Transplant Immunosuppressive Protocol

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Steroids</th>
<th>Antimetabolite</th>
<th>Calcineurin Inhibitor^4-7</th>
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</thead>
</table>
| **STANDARD** | Taper^1,2  
Initiate PRE-op | Mycophenolate mofetil (MMF)  
500mg po q 12h^3 | XR (extended release) tacrolimus  
4-6 mg/dose q 24h  
Initiate by POD#1  
OR  
IR (immediate release) tacrolimus  
2-4 mg/dose q 12h  
Initiate by POD#2  
Target Levels:  
POD #0-30: 10-12 ng/mL  
POD #31-180: 8-10 ng/mL  
POD #> 180: 3-8 ng/mL |
| **HCC HIGH RISK** | | | Initiate tacrolimus as above  
Convert to everolimus POD#30-60:  
Refer to mTOR conversion guideline^8 |

## 1STEROID Taper

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<thead>
<tr>
<th>POD</th>
<th>0</th>
<th>1</th>
<th>2</th>
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<tbody>
<tr>
<td>Methylprednisolone IV</td>
<td>500</td>
<td>250</td>
<td>125</td>
<td>60</td>
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<tr>
<td>Prednisone PO</td>
<td>--</td>
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<td>--</td>
<td>50</td>
<td>40</td>
<td>30</td>
<td>25</td>
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<tr>
<td>POD 8-20: Prednisone 20mg po</td>
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<td>POD 21-30: Prednisone 15mg po</td>
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<td>POD 31-45: Prednisone 10mg po</td>
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<td>POD 46-60: Prednisone 7.5mg po</td>
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<td>POD 61-75: Prednisone 5.0mg po</td>
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</table>
| POD 76: Prednisone 2.5mg po x 2 weeks then DISCONTINUE^2  
[AIH – stay on 5mg daily indefinitely |

## 2CRITERIA for STEROID discontinuation:
- Tacrolimus trough at target & stable (at least 2 readings)
- No history of allograft rejection (physician discretion)
- ESLD not secondary to AIH

## 3Mycophenolate dose adjustments
- GI adverse events: may change frequency to QID and give with meals
- WBC: ↓ dose by 50% when WBC 2-3; Hold when WBC < 2
- Active Infection: doses may be held (physician discretion)

## 4Tacrolimus initiation in setting of renal dysfunction
- Consider initiating low dose (i.e. 1-2mg q 12 hours) and maintaining reduced serum levels.
- May need to augment adjunctive immunosuppression (physician discretion)

## 5IR Tacrolimus is preferred agent, with CYCLOSPORINE a second line option (physician discretion)
- CYCLO target levels (ng/mL):  
  - POD 0-30: 150-200  
  - POD 31-180: 100-150  
  - POD > 180: 75-125

## 6If unable to take PO IR tacrolimus change formulation based on clinical situation
- Able to tolerate enteral administration: administer tacrolimus suspension  
  - Dose is the same as PO dose
- Strict NPO: administer sublingual (SL) tacrolimus  
  - Dose is approximately 50% of PO dose  
- Strict NPO and unable to take SL: consider IV tacrolimus or cyclosporine.  
  - Use with caution due to adverse effects, anaphylactic reactions and need for dedicated line  
  - IV tacrolimus or cyclosporine dose is approximately 1/3 of PO dose  
    (discuss dosing with transplant pharmacist)

## 7Extended-release tacrolimus (Envarsus XR)
- May consider if:  
  - Suspected tacrolimus peak-related ADE’s (e.g., tremors)  
  - Financial difficulties requiring manufacturer patient assistance program
- Dose is approximately 80% of total daily IR Tacrolimus dose (conversion factor may differ in select situations, discuss dosing with transplant pharmacist)
- Monitor Envarsus XR with 24-hour tacrolimus trough levels; target levels same as with IR Tacrolimus (see above)

## 8mTOR conversion: refer to mTOR conversion guidelines for details regarding contraindications, dosing, monitoring and toxicities