

Transplant Rejection

There are various mechanisms through which organs are rejected. In hyperacute rejection, which occurs within minutes, an antibody-mediated rejection occurs due to the presence of preformed antidonor antibodies in the transplant recipient. Acute rejection, which occurs weeks later, leads to a cell-mediated rejection process due to cytotoxic T lymphocytes reacting against foreign MHCs or an antibody-mediated process. In chronic rejection, which occurs months to years after transplant, organ atrophy is caused by T cell and antibody-mediated vascular damage.



PLAY PICMONIC

Hyperacute

[Hiker](#)

Hyperacute rejection occurs within minutes.

Occurs within Minutes

[Minute-stopwatch](#)

Hyperacute transplant rejections occur within minutes.

Antibody Mediated Due to Preformed Antidonor Antibodies

[Ant-tie-bodies in Preformed-line](#)

In this type of rejection, an antibody-mediated rejection occurs due to the presence of preformed antidonor antibodies in the transplant recipient.

Acute

[Acute-angle](#)

Acute rejection, which occurs weeks later, leads to a cell-mediated rejection process due to cytotoxic T lymphocytes reacting against foreign MHCs. Interestingly, it can also lead to an antibody-mediated immune (humoral) response.

Occurs within Weeks

[Weekly-newspaper](#)

Acute rejections occur within weeks of transplantation.

Cytotoxic T Lymphocytes Cause Cell-mediated or Antibody-mediated Response

[Side-toe-toxic Tennis-ball or Ant-tie bodies](#)

Acute rejection may occur due to a cell-mediated rejection process, where cytotoxic T lymphocytes react against foreign MHCs. Acute rejection may also occur due to an antibody-mediated (humoral) response.

Chronic

[Crone](#)

In chronic rejection, which occurs months to years after transplant, organ atrophy is caused by T cell and antibody-mediated vascular damage.

Occurs Months to Years Later

Monthly-moon and Yearly-sun

Chronic rejection is observed months to years after transplant.

Antibody and T Cell-mediated Vascular Damage

Ant-tie-bodies and Tennis-balls causing Vascular Damage

In this type of transplant rejection, T cell and antibody-mediated vascular damage leads to organ ischemia, causing atrophy.