Introduction: Malignancies are one of the major reasons for death with functioning graft in transplantation. In recent years, mTOR-inhibitors were shown to positively influence the occurrence and course of certain tumors. Although many reports have been published, the influence of mTOR-I on the overall incidence of tumors irrespective of their origin is not entirely clear up to this date. This we aimed to investigate using metaanalyses on the most relevant recent transplant trials.

Methods: The current literature was searched for prospective randomized controlled trials in solid organ transplantation using the following terms ((mTOR OR sirolimus OR everolimus) AND transplant AND malignancy). These trials were required to have had at least two treatment arms, one with an mTOR-I based immunosuppression and one containing CNI. The quality of the trials was assessed using the Jadad-score (minimum score of 2). There were 1075 trials screened of which 33 could be included (pts. = 12,384). The 1-year and longterm incidence of malignancies was assessed in metaanalyses.

Results: The reduction seen under mTOR-I in the metaanalysis on 1-year incidence of malignancy was not significant (RR 0,78, CI 0,58-1,07, p=0,12). This effect became significant in the longterm course (mean 33 month, RR 0,70, CI 0,57-0,86, p=0,0006). This was seen when mTOR-I were given either without CNIs or in combination with CNIs (mTOR-I w/o CNIs vs. CNIs: RR 0,66, CI 0,48-0,90, p=0,0099; mTOR-I with CNIs vs. CNIs: RR 0,73, CI 0,55-0,95, p=0,021).

Conclusion: Posttransplant patients with mTOR-I treatment with or without CNIs seem to benefit in respect of cancer incidence especially in the longterm course.