Supplementary Tables:

Table S1: Electronic search strategy:

Database: Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations and Ovid MEDLINE(R) <1946 to Present>

Search Strategy:
----
1 exp Transplants/ (10277)
2 exp Transplantation/ (436996)
3 exp allografts/ (3156)
4 (recipient* or receiver* or transplant* or allograft* or graft*).tw. (651476)
5 (re-transplant* or retransplant* or post-transplant* or posttransplant* or postgraft*).tw. (35218)
6 or/1-5 (785953)
7 exp Kidney/ (316829)
8 (kidney* or renal or nephr*).tw. (763437)
9 7 or 8 (845640)
10 6 and 9 (117119)
11 exp Kidney Transplantation/ (82549)
12 10 or 11 (127050)
13 exp Cyclosporins/ (36819)
14 exp Tacrolimus/ (13348)

15	exp Sirolimus/ (14594)
16	(cyclosporin* or tacrolimus or sirolimus or sandimun or neoral or everolimus or certican or rapamune or rapamycine or afinitor or zortress or afinitor or gengraf).tw. (59407)
17	(biosporin* or sigmasporin* or osporin* or imusporin*).tw. (29)
18	(cyclohexan* or consupren*).tw. (8130)
19	(prograf or advagraf or astagraf or envarsus or adoport or graceptor or modigraf).tw. (227)
20	(calcineurin* adj3 (inhibit* or block* or suppress*)).tw. (6639)
21	(immunosuppress* or immuno-suppress* or mTOR).tw. (128607)
22	or/13-21 (188646)
23	exp BK Virus/ (1715)
24	exp Polyomavirus Infections/ (6277)
25	((BK or polyoma*) adj3 (vir?emia* or virus* or nephropath* or infection*)).tw. (4941)
26	exp Cytomegalovirus Infections/ (22444)
27	((Cytomegalovirus or CMV or cytomegalovirus* or (salivary adj2 gland* adj virus*) or hhv 5) adj5 infection*).tw. (15956)
28	or/23-27 (37462)
29	12 and 22 and 28 (1961)

Database: Embase <1980 to 2016 Week 03>

Search Strategy:
----
1 exp Transplantation/ (814830)
2 exp allografts/ (26879)
3 (recipient* or receiver* or transplant* or allograft* or graft*).tw. (837870)
4 (re-transplant* or retransplant* or post-transplant* or posttransplant* or postgraft*).tw. (58873)
5 or/1-4 (1097200)
6 exp Kidney/ (353081)
7 (kidney* or renal or nephr*).tw. (934464)
8 6 or 7 (1020686)
9 5 and 8 (166121)
10 exp Kidney Transplantation/ (119642)
11 9 or 10 (179883)
12 exp Cyclosporins/ (1942)
13 exp Tacrolimus/ (58816)
14 exp Sirolimus/ (40508)
15 (cyclosporin* or tacrolimus or sirolimus or sandimun or neoral or everolimus or certican or rapamune or rapamycine or afinitor or zortress or afinitor or gengraf).tw. (90583)
16 (biosporin* or sigmasporin* or osporin* or imusporin*).tw. (39)
17 (cyclohexan* or consupren*).tw. (10420)

18	(prograf or advagraf or astagraf or envarsus or adoport or graceptor or modigraf).tw. (2901)
19	(calcineurin* adj3 (inhibit* or block* or suppress*)).tw. (10548)
20	(immunosuppress* or immuno-suppress* or mTOR).tw. (179912)
21	or/12-20 (287962)
22	exp BK Virus/ (2782)
23	exp Polyomavirus Infections/ (5510)
24	((BK or polyoma*) adj3 (vir?emia* or virus* or nephropath* or infection*)).tw. (5958)
25	exp Cytomegalovirus Infections/ (27388)
26	((Cytomegalovirus or CMV or cytomegalovirus* or (salivary adj2 gland* adj virus*) or hhv 5) adj5 infection*).tw. (20613)
27	or/22-26 (46125)
28	11 and 21 and 27 (5140)

Search Name: mTOR_CENTRAL_Jan18

Last Saved: 18/01/2016 15:03:20.183

Description:		
ID	Search	
#1	MeSH descriptor: [Transplants] explode all trees	
#2	MeSH descriptor: [Transplantation] explode all trees	
#3	MeSH descriptor: [Allografts] explode all trees	
#4	recipient or receiver or transplant or allograft or graft	
#5	retransplant* or re-transplant* or post-transplant* or posttransplant* or graft* or postgraft* or post-graft*	
#6	#1 or #2 or #3 or #4 or #5	
#7	MeSH descriptor: [Kidney] explode all trees	
#8	kidney* or renal or nephr*	
#9	#7 or #8	
#10	#6 and #9	

#11	MeSH descriptor: [Kidney Transplantation] explode all trees	
#12	#10 or #11	
#13	MeSH descriptor: [Cyclosporins] explode all trees	
#14	MeSH descriptor: [Tacrolimus] explode all trees	
#15	MeSH descriptor: [Sirolimus] explode all trees	
#16	cyclosporin or tacrolimus or sirolimus or sandimun or neoral or everolimus or certican or rapamune or rapamycine or afinitor or zortress or afinitor or gengraf	
#17	biosporin or sigmasporin or osporin or imusporin	
#18	cyclohexan or consupren	
#19	prograf or advagraf or astagraf or envarsus or adoport or graceptor or modigraf	
#20	calcineurin near/3 inhibitor	
#21	immunosuppress or immuno-suppress	

#22	MeSH descriptor: [TOR Serine-Threonine Kinases] explode all trees	
#23	mTOR	
#24	#13 or #14 or #15 or #16 or #17 or #18 or #19 or #20 or #21 or #22 or #23	
#25	MeSH descriptor: [BK Virus] explode all trees	
#26	MeSH descriptor: [Polyomavirus Infections] explode all trees	
#27	BK virus	
#28	BK near/3 nephropathy	
#29	BK near/3 infection	
#30	MeSH descriptor: [Cytomegalovirus Infections] explode all trees	
#31	CMV near/5 infection	
#32	cytomegalovirus near/5 infection	
#33	#27 or #28 or #29 or #30 or #31 or #32	
#34	#6 and #24 and #33	

Table S2: Risk of bias in included studies (Comparison 1)

Study Name	Random sequence generation	Allocation concealment	Blinding of participants and personnel	Blinding of outcomes assessment	Completeness of data	Selective outcome reporting	Other bias
Rostaing, 2015 [18]	Unclear risk of bias Method of randomization not specified	Unclear risk of bias Method of allocation concealment not specified	Unclear risk of bias "open label trial"	Low risk of bias "Review authors judge that the outcome is not likely to be influenced by lack of blinding"	Unclear risk of bias "Study was completed by 81.4% of patients, with adverse events being the most frequent reason for withdrawal"	Low risk of bias All outcomes listed in the methods section are reported in the results section	low risk of bias The study appears to be free of other sources of bias
Budde, 2015 [19]	Low risk of bias "Patients were randomized using a validated, automated, central system in a 1 :1 ratio, with investigators notified of the treatment group by fax"	Low risk of bias "Patients were randomized using a validated, automated, central system in a 1 : 1 ratio, with investigators notified of the treatment group by fax"	Unclear risk of bias " open label trial"	Low risk of bias "Review authors judge that the outcome is not likely to be influenced by lack of blinding"	Low risk of bias " 6 patients in intervention group and 9 patients in control group discontinued the trial" " reasons for discontinuation unlikely related to true outcome, administration	Low risk of bias "All outcomes listed in the methods section are reported in the results section	High risk of bias "Baseline differences between the two treatment arms. Everolimus group was a mean of 1 year longer post-transplant and a median of almost 2 years longer, a difference

					reasons, withdrawal of consent"		that may have favored the CNI arm"
Budde, 2014 APPOLO(5-years follow-up) [20]	Low risk of bias "Patients were randomized using a validated, automated, central system in a 1 : 1 ratio, with investigators notified of the treatment group by fax"	Low risk of bias "Patients were randomized using a validated, automated, central system in a 1 : 1 ratio, with investigators notified of the treatment group by fax"	Unclear risk of bias " open label trial"	Low risk of bias "Review authors judge that the outcome is not likely to be influenced by lack of blinding	Low risk of bias " 12 patients in intervention group and 14 patients in control group discontinued the trial" " reasons for discontinuation unlikely related to true outcome; administration reasons, withdrawal of consent, death"	Low risk of bias "All outcomes listed in the methods section are reported in the results section	High risk of bias " trial was terminated early due to slow recruitment of patients" "Baseline differences between the two treatment arms. Everolimus group was a mean of 1 year longer post-transplant and a median of almost 2 years longer, a difference that may have favored the CNI arm"
Budde, 2014 ZEUS [21]	Low risk of bias "Randomization was	Low risk of bias "Randomization was done by use of a central,	Unclear risk of bias " open label trial"	Low risk of bias "Review authors judge that the outcome is not	Low risk of bias "14 patients in intervention group and 14 patients in control group	Low risk of bias "All outcomes listed in the methods section	low risk of bias the study appears to be free of other sources of bias

	performed using an automated, validated system"	validated system that automated the random assignment of treatment groups to randomization numbers"		likely to be influenced by lack of blinding	discontinued the trial at 1 year" " reasons for discontinuation unlikely related to true outcome, administration reasons, withdrawal of consent, adverse event, death and loss to follow up"	are reported in the results section	
Silva Jr, 2013 [22]	Low risk of bias "Randomization was stratified according to donor source (deceased/living) and transplant center using computer-generated sequences"	Low risk of bias "Randomization was stratified according to donor source and transplant center using computer-generated sequences"	Unclear risk of bias " open label trial"	Low risk of bias "Review authors judge that the outcome is not likely to be influenced by lack of blinding"	Low risk of bias " 13 patients in total withdrew at 3 months, reasons for discontinuation unlikely related to true outcome; 5 graft loss, 5 deaths, 1 lost to follow-up, 3 withdrew consent"	Low risk of bias "All outcomes listed in the methods section are reported in the results section	Low risk of bias the study appears to be free of other sources of bias
Chhabra, 2013 [23]	Unclear risk of bias Method of randomization	Unclear risk of bias Method of randomization and allocation	Unclear risk of bias " open label trial"	Low risk of bias "Review authors judge that the outcome is not	Low risk of bias "13 out of 200 patients in total withdrew from the trial.	" Low risk of bias "All outcomes listed in the methods section	Low risk of bias The study appears to be

	not mentioned in the manuscript	concealment not mentioned in the manuscript		likely to be influenced by lack of blinding"	Reasons for discontinuation unlikely related to true outcome; acute rejection at the time of randomization, withdrawal of consent or death.	are reported in the results section	free of other sources of bias
Bansal 2013 [24]	Low risk of bias "Randomization was done with the help of a computer generated Bernoulli random number table"	Low risk of bias "allocation concealment was achieved by opaque sequentially numbered sealed envelopes"	Unclear risk of bias "open label trial	Low risk of bias "Review authors judge that the outcome is not likely to be influenced by lack of blinding"	Unclear risk of bias " 48 out of 60 randomized patients completed the trial and were included in endpoints analysis	Low risk of bias All outcomes listed in the methods sections are reported in the results section	Low risk of bias The study appears to be free of other sources of bias
Mjornstedt, 2012 [25]	Low risk of bias "Randomization using a validated, automated system"	Low risk of bias "Randomization was performed centrally in a 1:1 ratio, stratified by center using a validated, automated system, with investigators notified of the randomization group via the	Unclear risk of bias " open label trial"	Low risk of bias "Review authors judge that the outcome is not likely to be influenced by lack of blinding"	Low risk of bias Ten patients in each group discontinued the trial at 12 months" Reasons for discontinuation unlikely related to true outcome: withdrawal of consent (five everolimus, four	Low risk of bias "All outcomes listed in the methods section are reported in the results section"	Low risk of bias The study appears to be free of other sources of bias

		electronic case record form system"			controls), death (two in each group) and missed follow-up (two in each group).		
Guba 2012 (Follow-up of Guba 2010) [26]	Low risk of bias "Permuted block randomization scheme was used "	Low risk of bias "Allocation concealment was secured by a centralized distribution of sequentially numbered, opaque, sealed envelopes, and a confirmatory randomization fax to the clinical research organization"	Unclear risk of bias " open label trial"	Low risk of bias "Review authors judge that the outcome is not likely to be influenced by lack of blinding	Low risk of bias " a total of 8 out of 140 patients in both groups had missing data or lost to follow-up between 12 and 36 months	" Low risk of bias "All outcomes listed in the methods section are reported in the results section	Low risk of bias the study appears to be free of other sources of bias
Weir, 2011 [27]	Low risk of bias "Randomization numbers were generated in blocks with equal treatment allocation in each block. The study sponsor	Low risk of bias Randomization numbers were generated in blocks with equal treatment allocation in each block. The study sponsor	Unclear risk of bias " open label trial"	Low risk of bias "Review authors judge that the outcome is not likely to be influenced by lack of blinding	Low risk of bias "Of the 305 randomized patients, 39 (26%) in the MMF/ SRL group and 38 (25%) in the MMF/CNI group prematurely	Low risk of bias "All outcomes listed in the methods section are reported in the results section	Low risk of bias the study appears to be free of other sources of bias

	generated the subject randomization numbers that were accessible through an interactive voice–response system"	generated the subject randomization numbers that were accessible through an interactive voice–response system"			withdrew during the study treatment period		
Heilman, 2011 [28]	Low risk of bias "Treatment allocation was assigned by using a computer random number generator"	Low risk of bias "Treatment allocation was assigned by using a computer random number generator"	Unclear risk of bias "non-blinded trial"	Low risk of bias "Review authors judge that the outcome is not likely to be influenced by lack of blinding	Unclear risk of bias 15 patients in the sirolimus group and no patients in the cyclosporine group were withdrawn after randomization	Low risk of bias "All outcomes listed in the methods section are reported in the results section	Low risk of bias the study appears to be free of other sources of bias
Guba, 2010 [29]	Low risk of bias "Permuted block randomization scheme was used "	Low risk of bias "Allocation concealment was secured by a centralized distribution of sequentially numbered, opaque, sealed envelopes, and a confirmatory randomization	Unclear risk of bias " open label trial"	Low risk of bias "Review authors judge that the outcome is not likely to be influenced by lack of blinding	Low risk of bias " 5 out of 140 patients overall were lost to follow-up at 12 months"	Low risk of bias "All outcomes listed in the methods section are reported in the results section	Low risk of bias the study appears to be free of other sources of bias

		fax to the clinical research organization"					
Franz, 2010 [30]	Unclear risk of bias "randomly assigned before transplant from a living or cadaveric donor in a masked fashion"	Unclear risk of bias "randomly assigned before transplant from a living or cadaveric donor in a masked fashion"	Unclear risk of bias " open label trial"	Low risk of bias "Review authors judge that the outcome is not likely to be influenced by lack of blinding	Low risk of bias " 2 patients in each group discontinued the trial ; 1 died and 1 had primary non function in each group	Low risk of bias "All outcomes listed in the methods section are reported in the results section"	Low risk of bias the study appears to be free of other sources of bias
Lebranchu, 2009 [31]	Low risk of bias "randomization was centralized and balanced, the centralized randomization was ensured via internet"	Low risk of bias "randomization was centralized and balanced, the centralized randomization was ensured via internet"	Unclear risk of bias "open label trial"	Low risk of bias "Review authors judge that the outcome is not likely to be influenced by lack of blinding	Low risk of bias " one patient was withdrawn after randomization, all other patients were included in the intention-to-treat analysis"	Low risk of bias "All outcomes listed in the methods section are reported in the results section"	Low risk of bias the study appears to be free of other sources of bias
Durrbach 2008 [32]	Unclear risk of bias Method of randomization not specified	Unclear risk of bias Method of allocation concealment not specified	Unclear risk of bias "open label trial"	Low risk of bias "Review authors judge that the outcome is not likely to be influenced by lack of blinding	Low risk of bias 3 of the randomized patients were not included in analysis because they did receive a kidney transplant	Low risk of bias "All outcomes listed in the methods section are reported in the results section	Low risk of bias the study appears to be free of other sources of bias

Ekberg, 2007 [33]	Low risk of bias “Patients underwent randomization with the use of a centralized interactive Voice-response system)”	Low risk of bias “Patients underwent randomization with the use of a centralized interactive Voice-response system”	Unclear risk of bias “ open label trial”	Low risk of bias “Review authors judge that the outcome is not likely to be influenced by lack of blinding	Low risk of bias Percentage of patients who withdrew consent or were lost to follow-up was balanced between groups	Low risk of bias “All outcomes listed in the methods section are reported in the results section	Low risk of bias the study appears to be free of other sources of bias
Flechner, 2007 (5-year follow-up of Flechner 2002) [34]	Low risk of bias “Patients were randomly assigned prior to transplantation by computer-generated selection”	Low risk of bias “Patients were randomly assigned prior to transplantation by computer-generated selection”	Unclear risk of bias “ open label trial”	Low risk of bias “Review authors judge that the outcome is not likely to be influenced by lack of blinding	Low risk of bias “ None of the patients was lost to follow-up at 5 years”	Low risk of bias “All outcomes listed in the methods section are reported in the results section	Low risk of bias the study appears to be free of other sources of bias
Buchler, 2007 [35]	Low risk of bias “Patients were randomly assigned prior to transplantation by computer-generated selection”	Low risk of bias “Patients were randomly assigned prior to transplantation by computer-generated selection”	Unclear risk of bias “ open label trial”	Low risk of bias “Review authors judge that the outcome is not likely to be influenced by lack of blinding	Low risk of bias “ 5 patients out of 150 were withdrawn of the study because they did not receive a transplant”	Low risk of bias “All outcomes listed in the methods section are reported in the results section	Low risk of bias the study appears to be free of other sources of bias
Larson, 2006 [36]	Unclear risk of bias	Unclear risk of bias	Unclear risk of bias “ open label trial”	Low risk of bias “Review authors judge that the	Low risk of bias “No patient was lost to follow-up”	Low risk of bias “All outcomes listed in the	Low risk of bias The study appears to be

	Method of randomization not specified	Method of allocation concealment not specified		outcome is not likely to be influenced by lack of blinding		methods section are reported in the results section	free of other sources of bias
Flechner, 2002 [37]	Low risk of bias “patients were randomized by means of computer-generated cards”	Low risk of bias “patients were randomized by means of computer-generated cards”	Unclear risk of bias “ open label trial”	Low risk of bias “Review authors judge that the outcome is not likely to be influenced by lack of blinding	Low risk of bias “ None of the patients was lost to follow-up”	Low risk of bias “All outcomes listed in the methods section are reported in the results section	Low risk of bias the study appears to be free of other sources of bias
Kreis, 2000 [38]	Unclear risk of bias Method of randomization not specified	Unclear risk of bias Method of allocation concealment not specified	Unclear risk of bias “ open label trial”	Low risk of bias “Review authors judge that the outcome is not likely to be influenced by lack of blinding	High risk of bias 10 (25%) patients at month 6 and 17 (43%) patients at month 12 discontinued from the protocol in the sirolimus group. In the CsA group, 5 (13%) patients at month 6 and 10 (26%) patients at month 12 discontinued from the protocol.	Low risk of bias “All outcomes listed in the methods section are reported in the results section	Low risk of bias The study appears to be free of other sources of bias

Groth 1999 [39]	Low risk of bias “Patients were randomized equally, by calling a central computer”	low risk of bias “Patients were randomized equally, by calling a central computer”	Unclear risk of bias “ open label trial”	Low risk of bias “Review authors judge that the outcome is not likely to be influenced by lack of blinding	High risk of bias In sirolimus group 24 out of 41 patients discontinued the trial at 12 months In Cyclosporine group, 19 out 42 patients discontinued the trial at 12 months	Low risk of bias “All outcomes listed in the methods section are reported in the results section	Low risk of bias The study appears to be free of other sources of bias

Table S3: Risk of bias in included studies (Comparison 2)

Study Name	Random sequence generation	Allocation concealment	Blinding of participants and personnel	Blinding of outcomes assessment	Completeness of data	Selective outcome reporting	Other bias
Tedesco-Silva, 2015 [40]	Low risk of bias "A computer-generated randomization sequence was obtained and placed in sequentially numbered opaque envelops"	Low risk of bias "A computer-generated randomization sequence was obtained and placed in sequentially numbered opaque envelops"	Unclear risk of bias " open label trial"	Low risk of bias "Review authors judge that the outcome is not likely to be influenced by lack of blinding"	Low risk of bias "12 randomized patients withdrew from the trial, reasons for withdrawal included patients did not receive a kidney transplant or transplanted at another center "	Low risk of bias "All outcomes listed in the methods section are reported in the results section"	Low risk of bias The study appears to be free of other sources of bias
Suszynski, 2013 [41]	Low risk of bias "randomized patients by nonblinded card pull"	risk of bias unclear "randomized patients by nonblinded card pull"	Unclear risk of bias " open label trial"	Low risk of bias "Review authors judge that the outcome is not likely to be influenced by lack of blinding"	Low risk of bias " Number of patients lost to follow-up was balanced between trial arms"	Low risk of bias "All outcomes listed in the methods section are reported in the results section"	Low risk of bias The study appears to be free of other sources of bias
Takahashi, 2013 [42]	Low risk of bias "The randomization list was produced by using a validated system that automated the random assignment of treatment arms to	Low risk of bias "The randomization list was produced by using a validated system that automated the random assignment of treatment arms to	Unclear risk of bias " open label trial"	Low risk of bias "Review authors judge that the outcome is not likely to be influenced by lack of blinding"	Low risk of bias "A total of eight patients discontinued the study at month 12 and all of the study discontinuations	Low risk of bias "All outcomes listed in the methods section are reported in the results section"	Low risk of bias The study appears to be free of other sources of bias

	randomization numbers"	randomization numbers"			were due to withdrawal of consent"		
Cibrik, 2013 (24 months follow-up of Silva Jr, 2010) [43]	Low risk of bias "Patients were assigned a randomization number, which was linked to one of the three treatment groups, using an interactive voice-response system"	Low risk of bias "Patients were assigned a randomization number, which was linked to one of the three treatment groups, using an interactive voice-response system"	Unclear risk of bias " open label trial"	Low risk of bias "Review authors judge that the outcome is not likely to be influenced by lack of blinding"	Low risk of bias 100 % of patients completed the trial	Low risk of bias "All outcomes listed in the methods section are reported in the results section"	Low risk of bias The study appears to be free of other sources of bias
Bertoni 2011 [44]	Unclear risk of bias Method of randomization not specified	Unclear risk of bias Method of allocation concealment not specified	Unclear risk of bias "open label trial"	Low risk of bias "Review authors judge that the outcome is not likely to be influenced by lack of blinding"	Unclear risk of bias " at 1 year, 89 patients out of 106 were evaluated"	Unclear risk of bias Outcomes wer not specified in methods section	Low risk of bias The study appears to be free of other sources of bias
Silva Jr, 2010 [45]	Low risk of bias "Patients were assigned a randomization number, which was linked to one of the three treatment groups, using an interactive voice-response system"	Low risk of bias "Patients were assigned a randomization number, which was linked to one of the three treatment groups, using an interactive voice-response system"	Unclear risk of bias " open label trial"	Low risk of bias "Review authors judge that the outcome is not likely to be influenced by lack of blinding"	Low risk of bias 100 % of patients completed the trial	Low risk of bias "All outcomes listed in the methods section are reported in the results section"	Low risk of bias The study appears to be free of other sources of bias

Supplementary Figures:

Figure S1: Risk of bias summary: review authors' judgements about each risk of bias item for each included study. (-): high risk of bias, (+): low risk of bias, (?): unclear risk of bias.

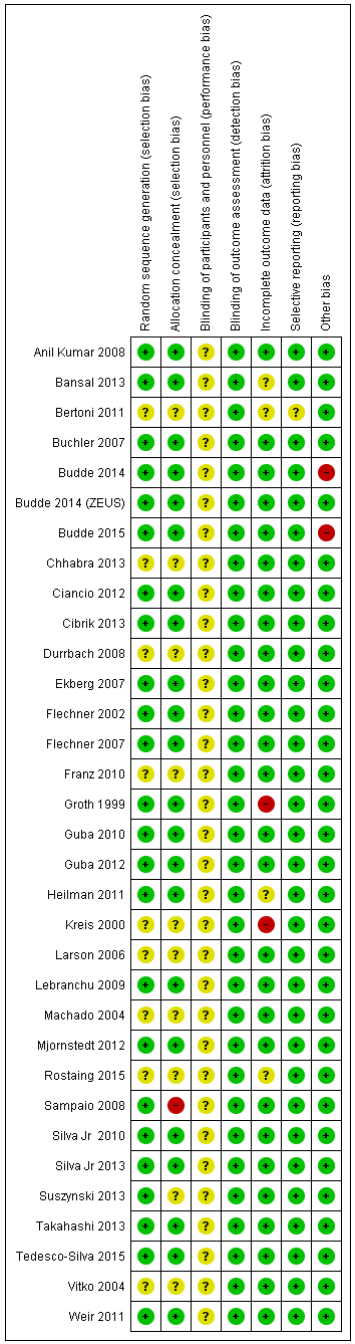
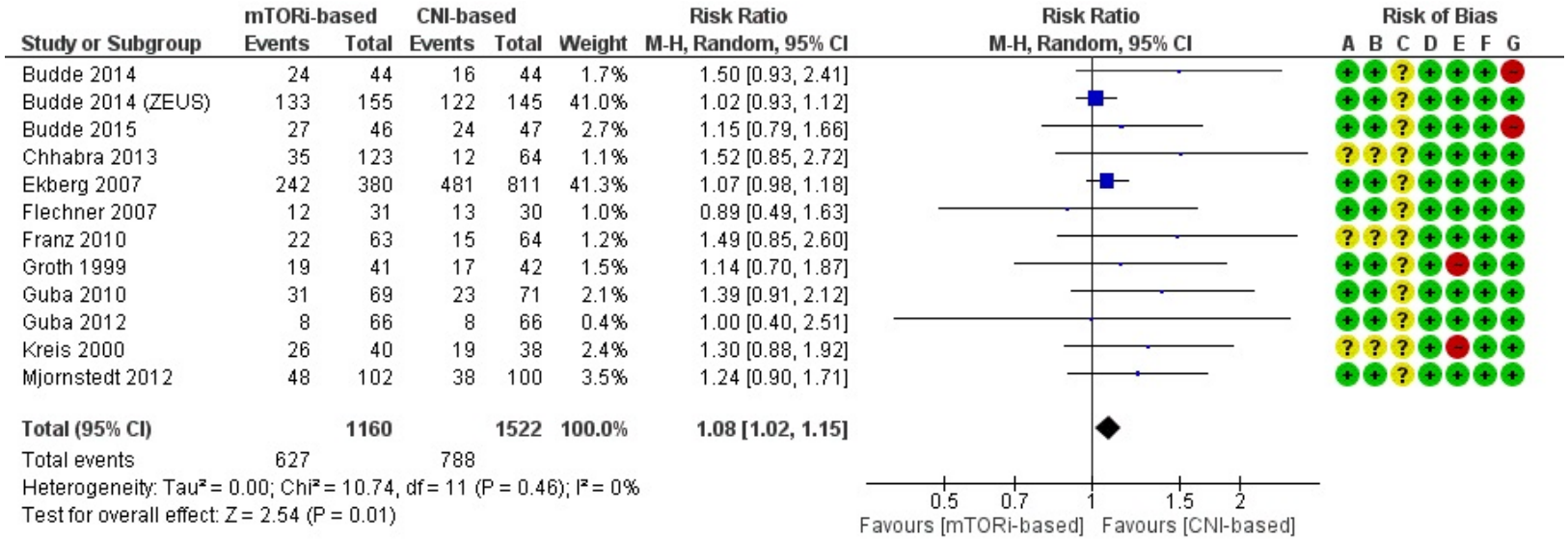

Random sequence generation (selection bias)
Allocation concealment (selection bias)
Blinding of participants and personnel (performance bias)
Blinding of outcome assessment (detection bias)
Incomplete outcome data (attrition bias)
Selective reporting (reporting bias)
Other bias
Anil Kumar 2008
Bansal 2013
Bertoni 2011
Buchler 2007
Budde 2014
Budde 2014 (ZEUS)
Budde 2015
Chhabra 2013
Ciancio 2012
Cibrik 2013
Durrbach 2008
Ekberg 2007
Flechner 2002
Flechner 2007
Franz 2010
Groth 1999
Guba 2010
Guba 2012
Heilman 2011
Kreis 2000
Larson 2006
Lebranchu 2009
Machado 2004
Mjornstedt 2012
Rostaing 2015
Sampaio 2008
Silva Jr 2010
Silva Jr 2013
Suszynski 2013
Takahashi 2013
Tedesco-Silva 2015
Vitko 2004
Weir 2011

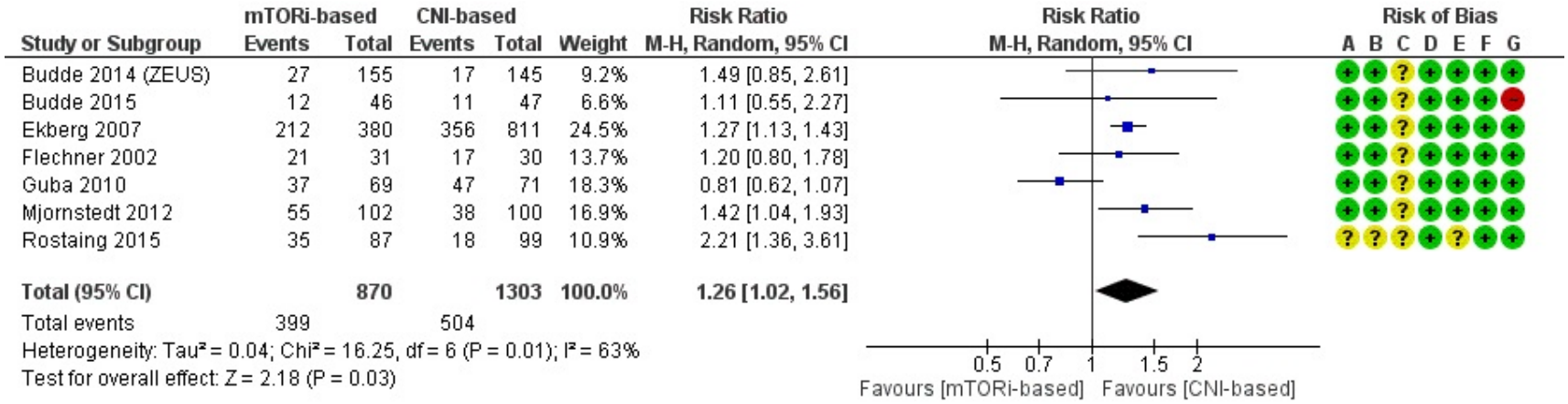
Figure S2: Forest plot, Comparison 1, incidence of other infections



Risk of bias legend

(**A**) Random sequence generation (selection bias)
(**B**) Allocation concealment (selection bias)
(**C**) Blinding of participants and personnel (performance bias)
(**D**) Blinding of outcome assessment (detection bias)
(**E**) Incomplete outcome data (attrition bias)
(**F**) Selective reporting (reporting bias)
(**G**) Other bias

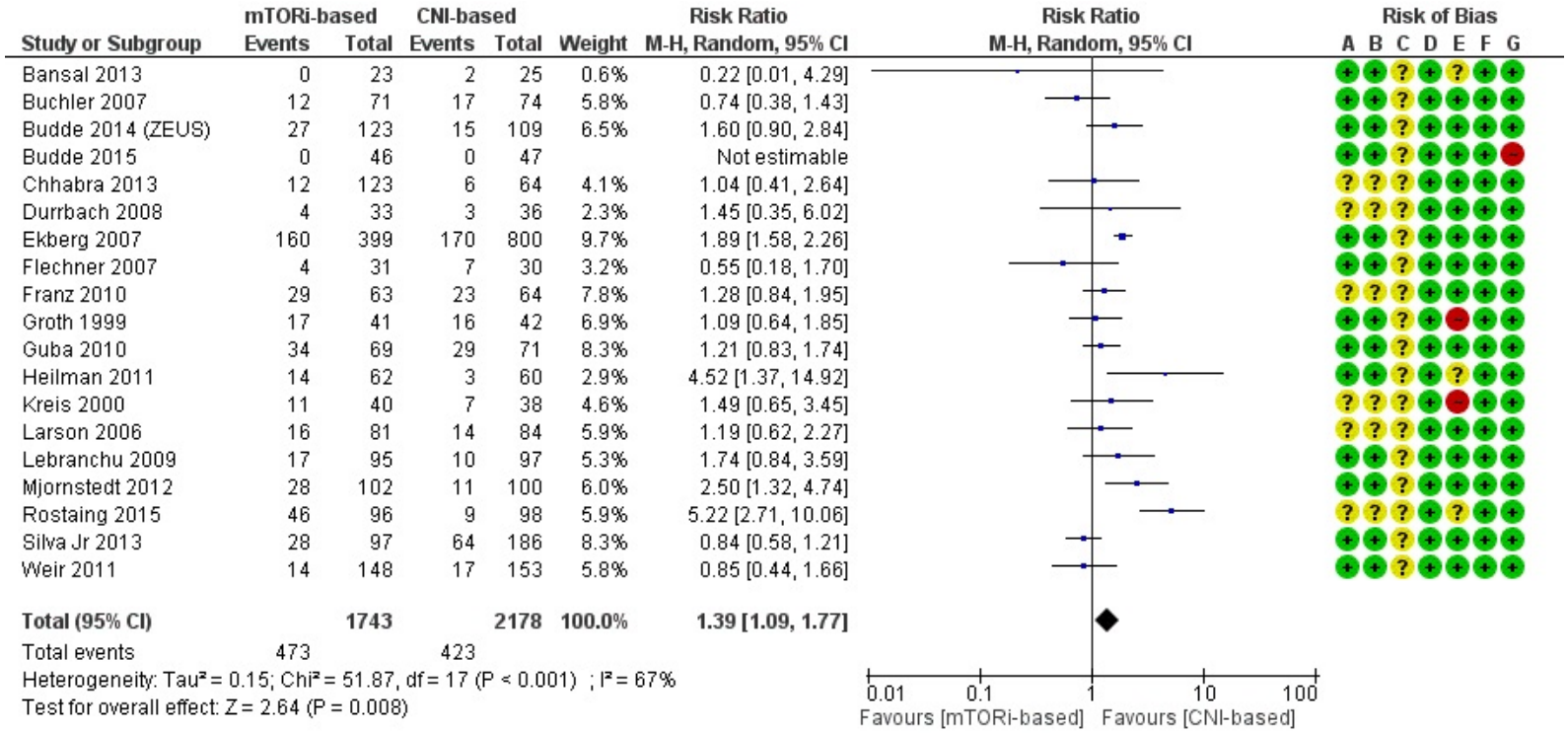
Figure S3: Forest plot, Comparison 1, serious adverse events



Risk of bias legend

(**A**) Random sequence generation (selection bias)
(**B**) Allocation concealment (selection bias)
(**C**) Blinding of participants and personnel (performance bias)
(**D**) Blinding of outcome assessment (detection bias)
(**E**) Incomplete outcome data (attrition bias)
(**F**) Selective reporting (reporting bias)
(**G**) Other bias

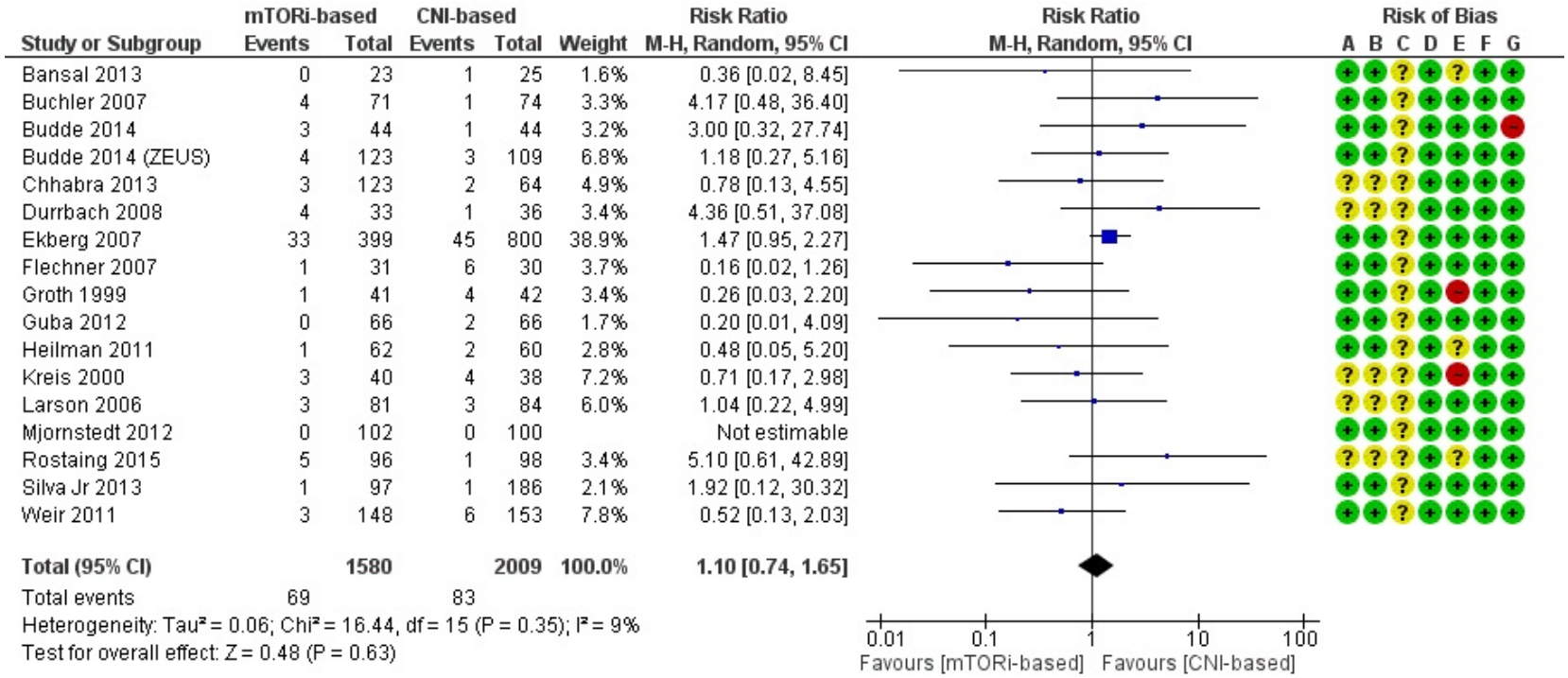
Figure S4: Forest plot, comparison 1, composite of acute rejection and DSA



Risk of bias legend

(**A**) Random sequence generation (selection bias)
(**B**) Allocation concealment (selection bias)
(**C**) Blinding of participants and personnel (performance bias)
(**D**) Blinding of outcome assessment (detection bias)
(**E**) Incomplete outcome data (attrition bias)
(**F**) Selective reporting (reporting bias)
(**G**) Other bias

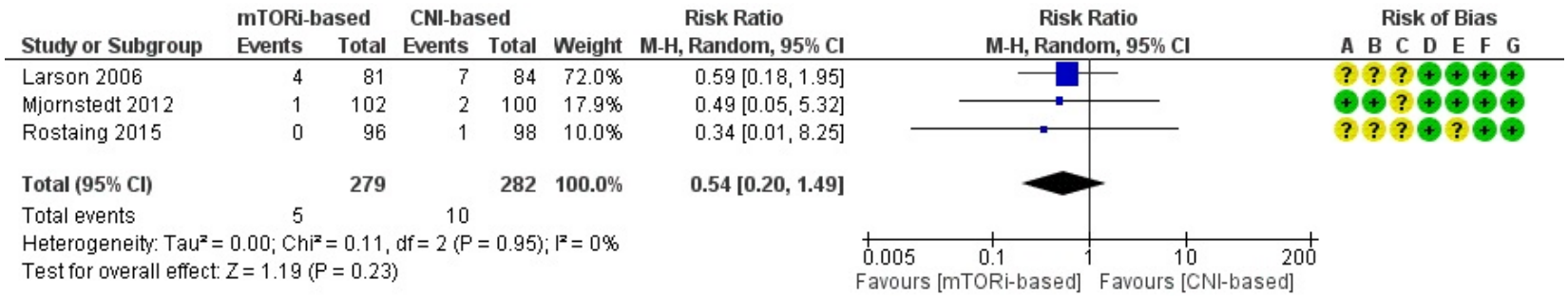
Figure S5: Forest plot, comparison 1, graft loss



Risk of bias legend

(**A**) Random sequence generation (selection bias)
(**B**) Allocation concealment (selection bias)
(**C**) Blinding of participants and personnel (performance bias)
(**D**) Blinding of outcome assessment (detection bias)
(**E**) Incomplete outcome data (attrition bias)
(**F**) Selective reporting (reporting bias)
(**G**) Other bias

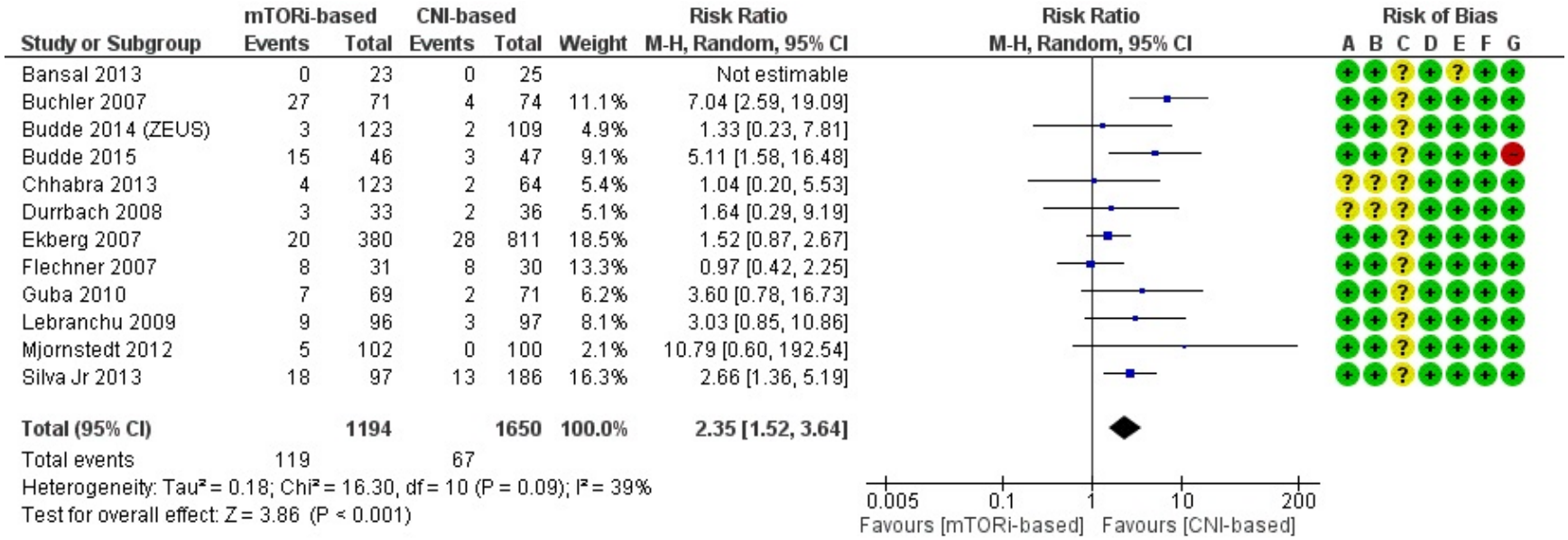
Figure S6: Forest plot, comparison 1, polyoma associated nephropathy



Risk of bias legend

(**A**) Random sequence generation (selection bias)
(**B**) Allocation concealment (selection bias)
(**C**) Blinding of participants and personnel (performance bias)
(**D**) Blinding of outcome assessment (detection bias)
(**E**) Incomplete outcome data (attrition bias)
(**F**) Selective reporting (reporting bias)
(**G**) Other bias

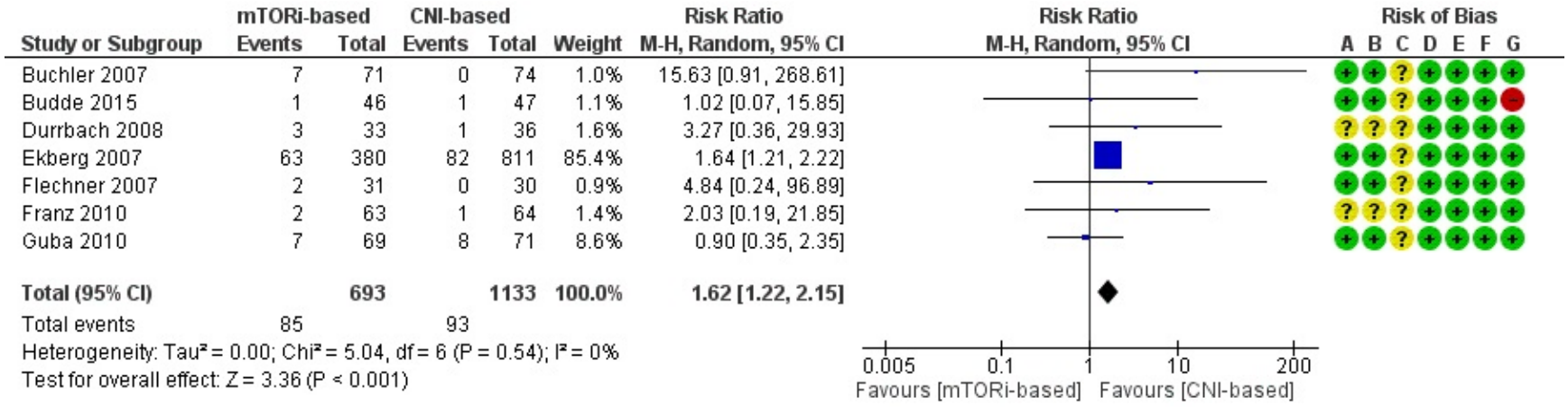
Figure S7: Forest plot, comparison 1, Proteinuria



Risk of bias legend

(**A**) Random sequence generation (selection bias)
(**B**) Allocation concealment (selection bias)
(**C**) Blinding of participants and personnel (performance bias)
(**D**) Blinding of outcome assessment (detection bias)
(**E**) Incomplete outcome data (attrition bias)
(**F**) Selective reporting (reporting bias)
(**G**) Other bias

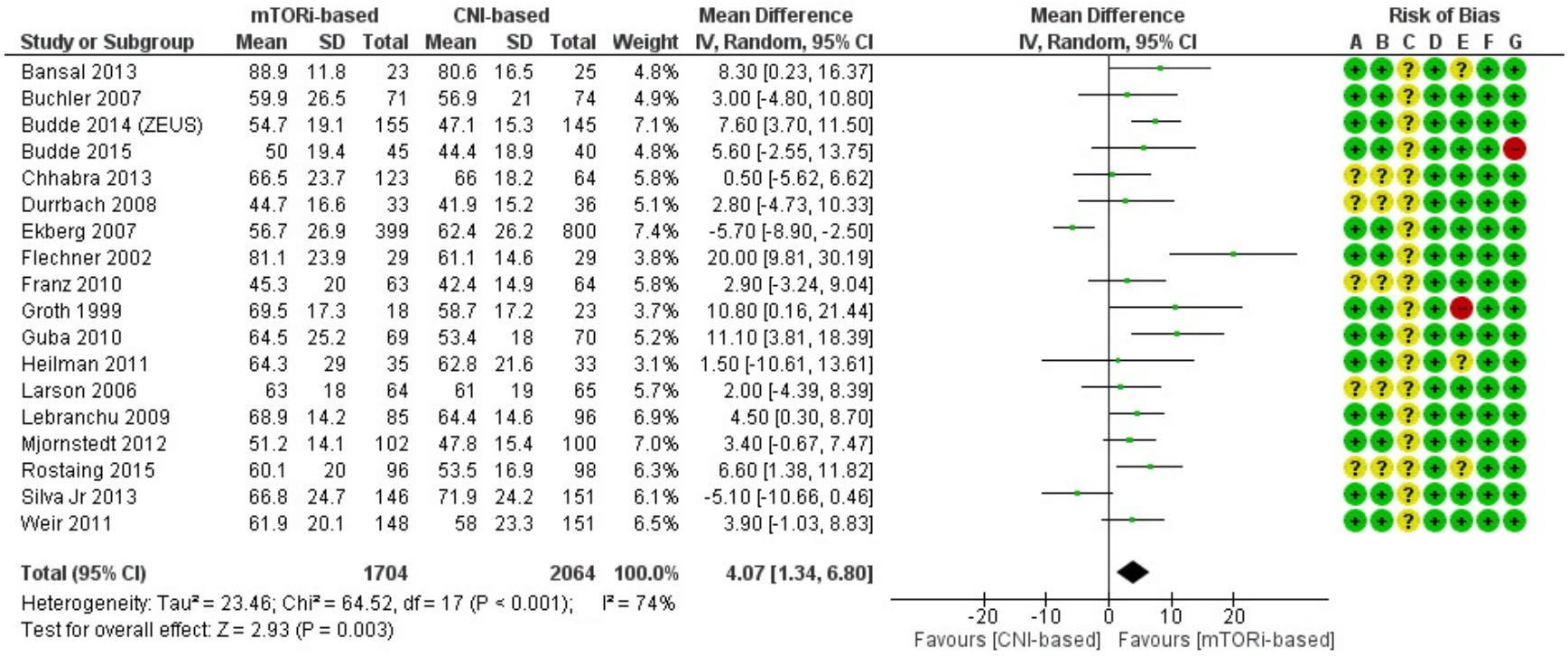
Figure S8: Forest plot, comparison 1, wound healing complications



Risk of bias legend

(**A**) Random sequence generation (selection bias)
(**B**) Allocation concealment (selection bias)
(**C**) Blinding of participants and personnel (performance bias)
(**D**) Blinding of outcome assessment (detection bias)
(**E**) Incomplete outcome data (attrition bias)
(**F**) Selective reporting (reporting bias)
(**G**) Other bias

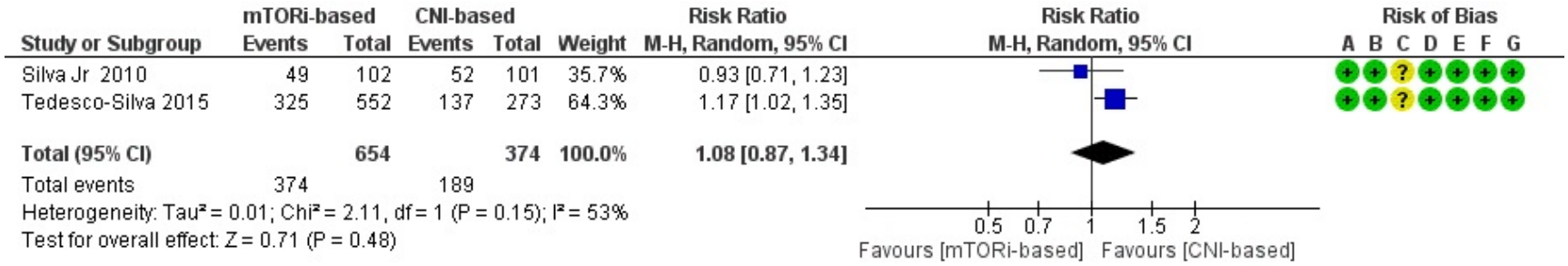
Figure S9: Forest plot, comparison 1, estimated GFR



Risk of bias legend

(**A**) Random sequence generation (selection bias)
(**B**) Allocation concealment (selection bias)
(**C**) Blinding of participants and personnel (performance bias)
(**D**) Blinding of outcome assessment (detection bias)
(**E**) Incomplete outcome data (attrition bias)
(**F**) Selective reporting (reporting bias)
(**G**) Other bias

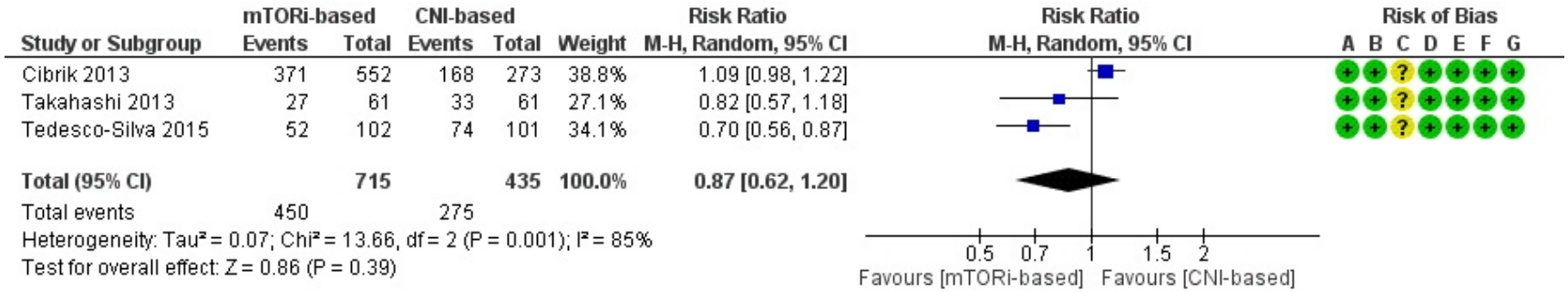
Figure S10: Forest plot, comparison 2, other infections



Risk of bias legend

(**A**) Random sequence generation (selection bias)
(**B**) Allocation concealment (selection bias)
(**C**) Blinding of participants and personnel (performance bias)
(**D**) Blinding of outcome assessment (detection bias)
(**E**) Incomplete outcome data (attrition bias)
(**F**) Selective reporting (reporting bias)
(**G**) Other bias

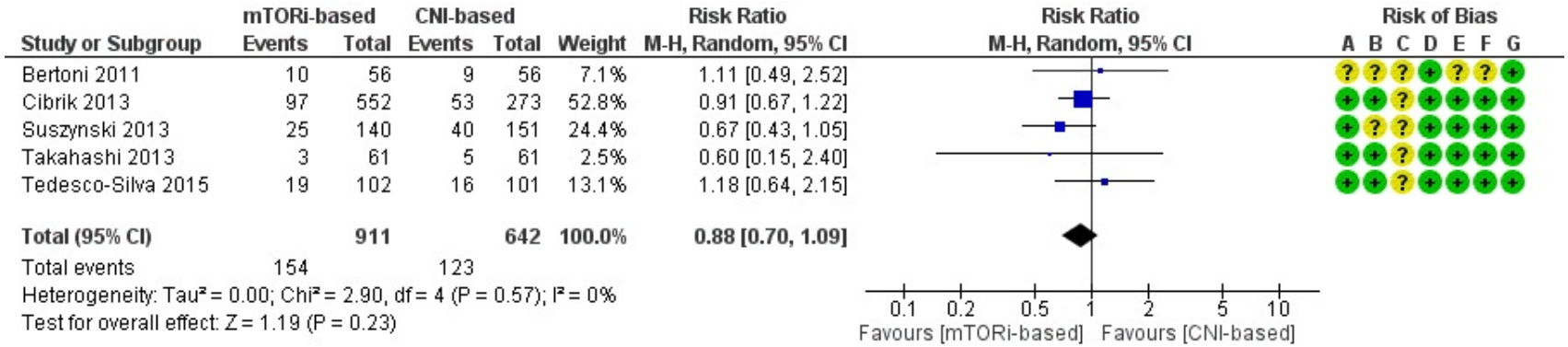
Figure S11: Forest plot, comparison 2, serious adverse events



Risk of bias legend

(**A**) Random sequence generation (selection bias)
(**B**) Allocation concealment (selection bias)
(**C**) Blinding of participants and personnel (performance bias)
(**D**) Blinding of outcome assessment (detection bias)
(**E**) Incomplete outcome data (attrition bias)
(**F**) Selective reporting (reporting bias)
(**G**) Other bias

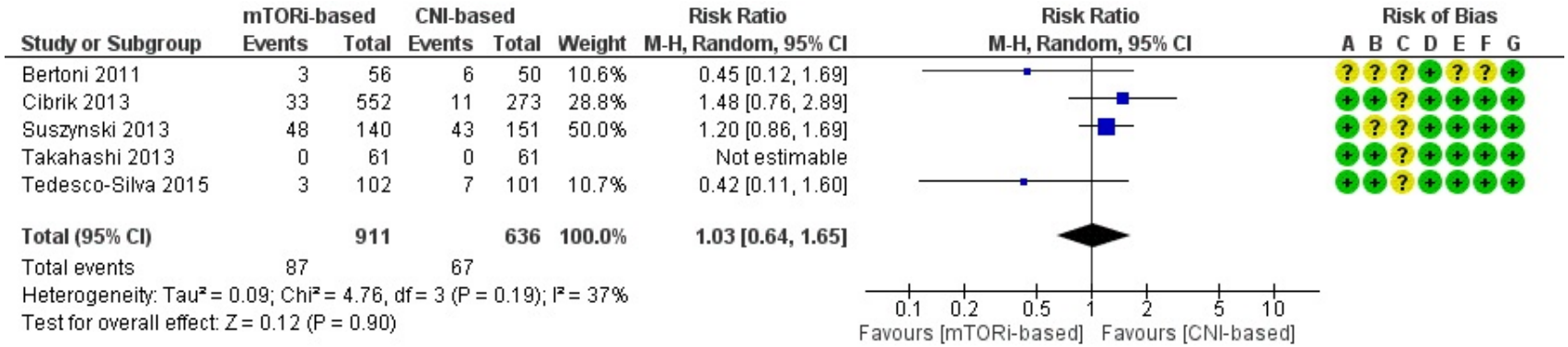
Figure S12: Forest plot, comparison 2, acute rejection



Risk of bias legend

(**A**) Random sequence generation (selection bias)
(**B**) Allocation concealment (selection bias)
(**C**) Blinding of participants and personnel (performance bias)
(**D**) Blinding of outcome assessment (detection bias)
(**E**) Incomplete outcome data (attrition bias)
(**F**) Selective reporting (reporting bias)
(**G**) Other bias

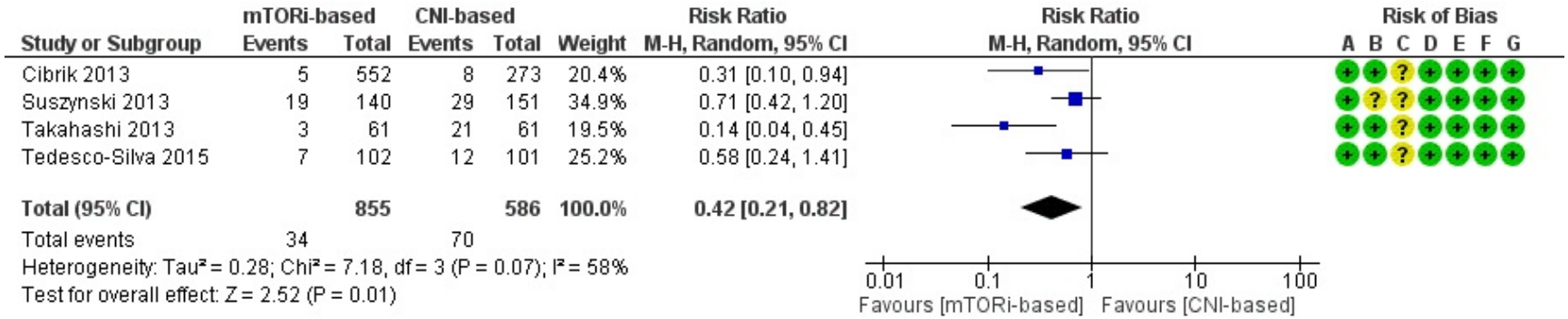
Figure S13: Forest plot, comparison 2, graft loss



Risk of bias legend

(**A**) Random sequence generation (selection bias)
(**B**) Allocation concealment (selection bias)
(**C**) Blinding of participants and personnel (performance bias)
(**D**) Blinding of outcome assessment (detection bias)
(**E**) Incomplete outcome data (attrition bias)
(**F**) Selective reporting (reporting bias)
(**G**) Other bias

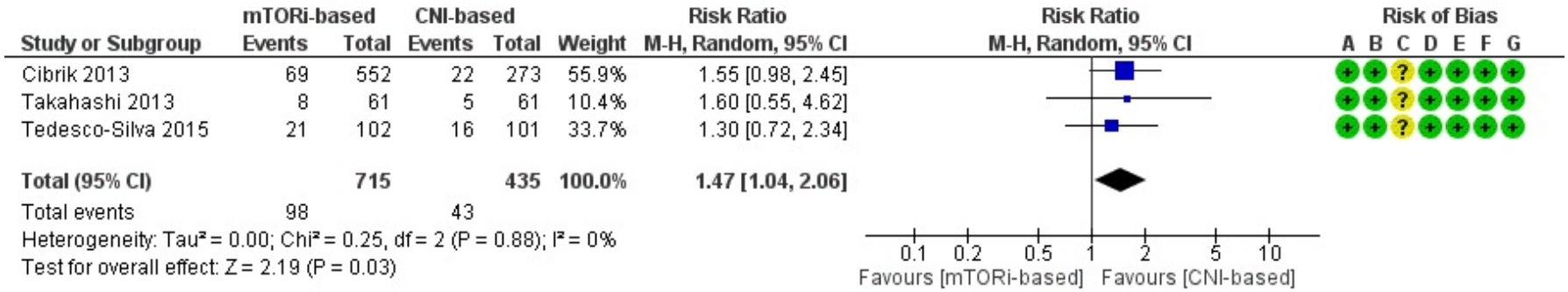
Figure S14: Forest plot, comparison 2, CMV disease



Risk of bias legend

(**A**) Random sequence generation (selection bias)
(**B**) Allocation concealment (selection bias)
(**C**) Blinding of participants and personnel (performance bias)
(**D**) Blinding of outcome assessment (detection bias)
(**E**) Incomplete outcome data (attrition bias)
(**F**) Selective reporting (reporting bias)
(**G**) Other bias

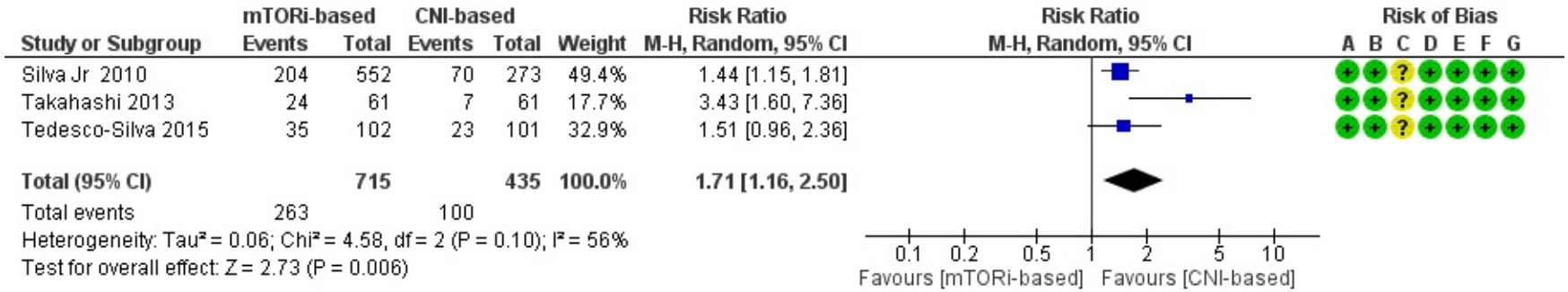
Figure S15: Forest plot, comparison 2, proteinuria



Risk of bias legend

(**A**) Random sequence generation (selection bias)
(**B**) Allocation concealment (selection bias)
(**C**) Blinding of participants and personnel (performance bias)
(**D**) Blinding of outcome assessment (detection bias)
(**E**) Incomplete outcome data (attrition bias)
(**F**) Selective reporting (reporting bias)
(**G**) Other bias

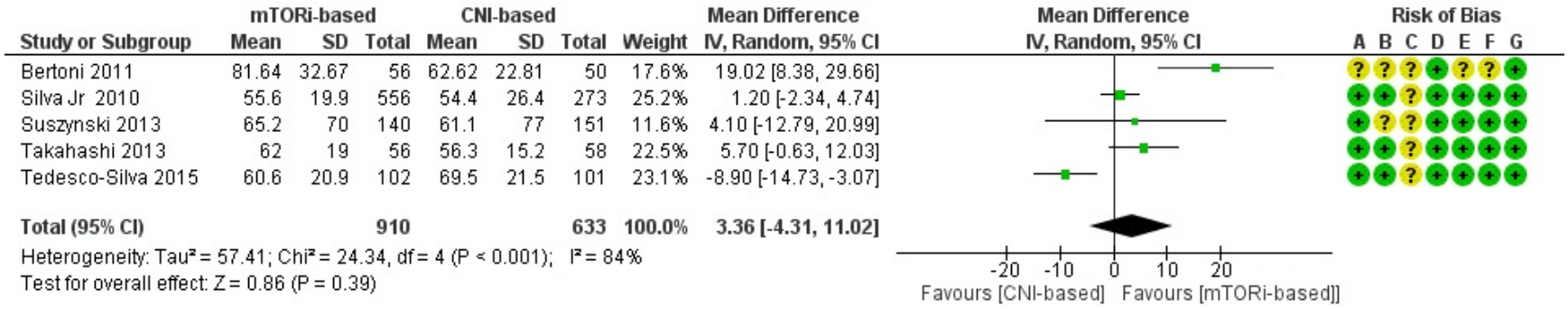
Figure S16: Forest plot, comparison 2, wound healing complications



Risk of bias legend

(**A**) Random sequence generation (selection bias)
(**B**) Allocation concealment (selection bias)
(**C**) Blinding of participants and personnel (performance bias)
(**D**) Blinding of outcome assessment (detection bias)
(**E**) Incomplete outcome data (attrition bias)
(**F**) Selective reporting (reporting bias)
(**G**) Other bias

Figure S17: Forest plot, comparison 2, estimated GFR



Risk of bias legend

(**A**) Random sequence generation (selection bias)
(**B**) Allocation concealment (selection bias)
(**C**) Blinding of participants and personnel (performance bias)
(**D**) Blinding of outcome assessment (detection bias)
(**E**) Incomplete outcome data (attrition bias)
(**F**) Selective reporting (reporting bias)
(**G**) Other bias

Figure S18: Forest plot, comparison 1, CMV infection subgroup analysis early vs late introduction of mTORi

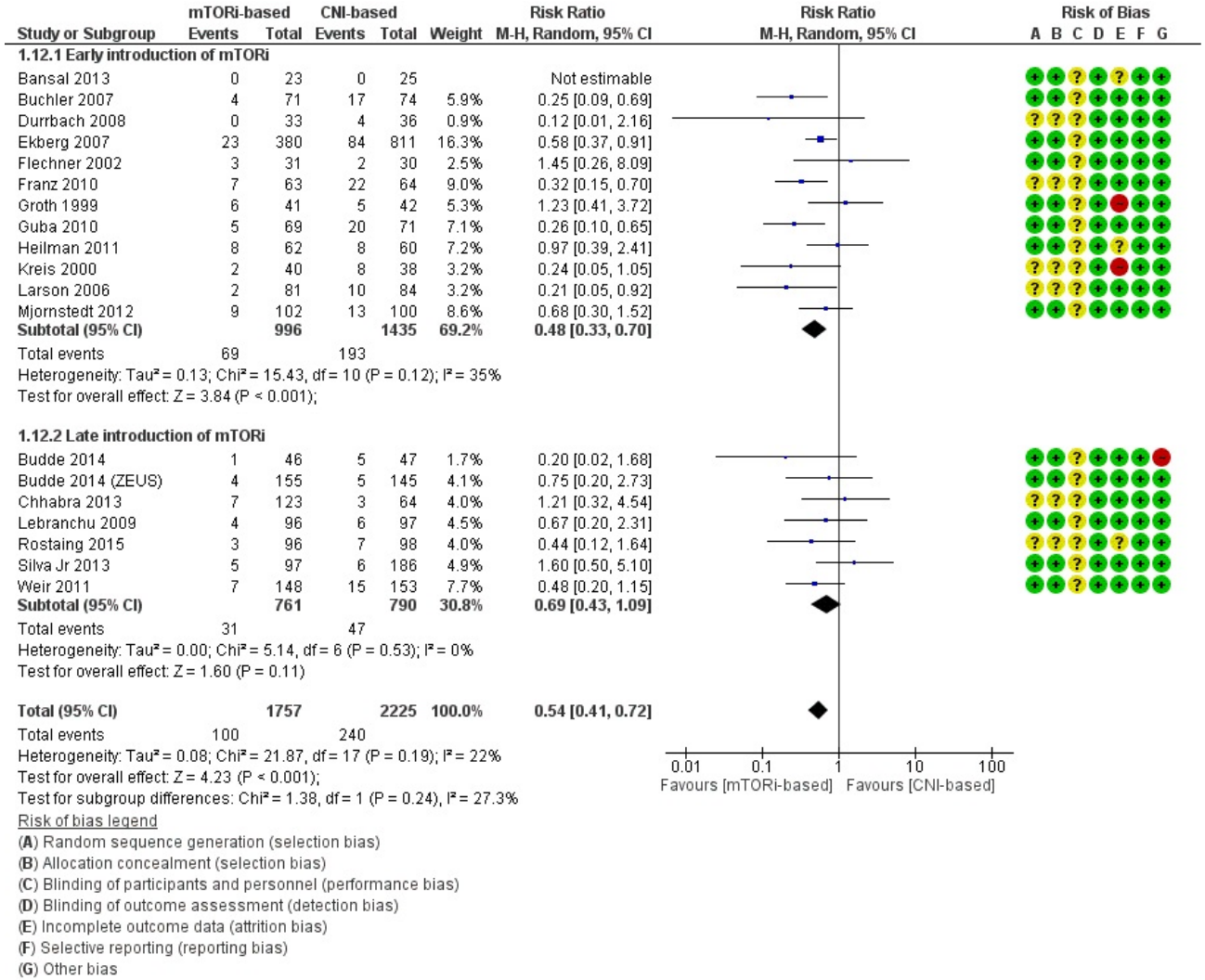


Figure S19: Forest plot, comparison 1, CMV infection subgroup analysis type of CNI and type of mTORi

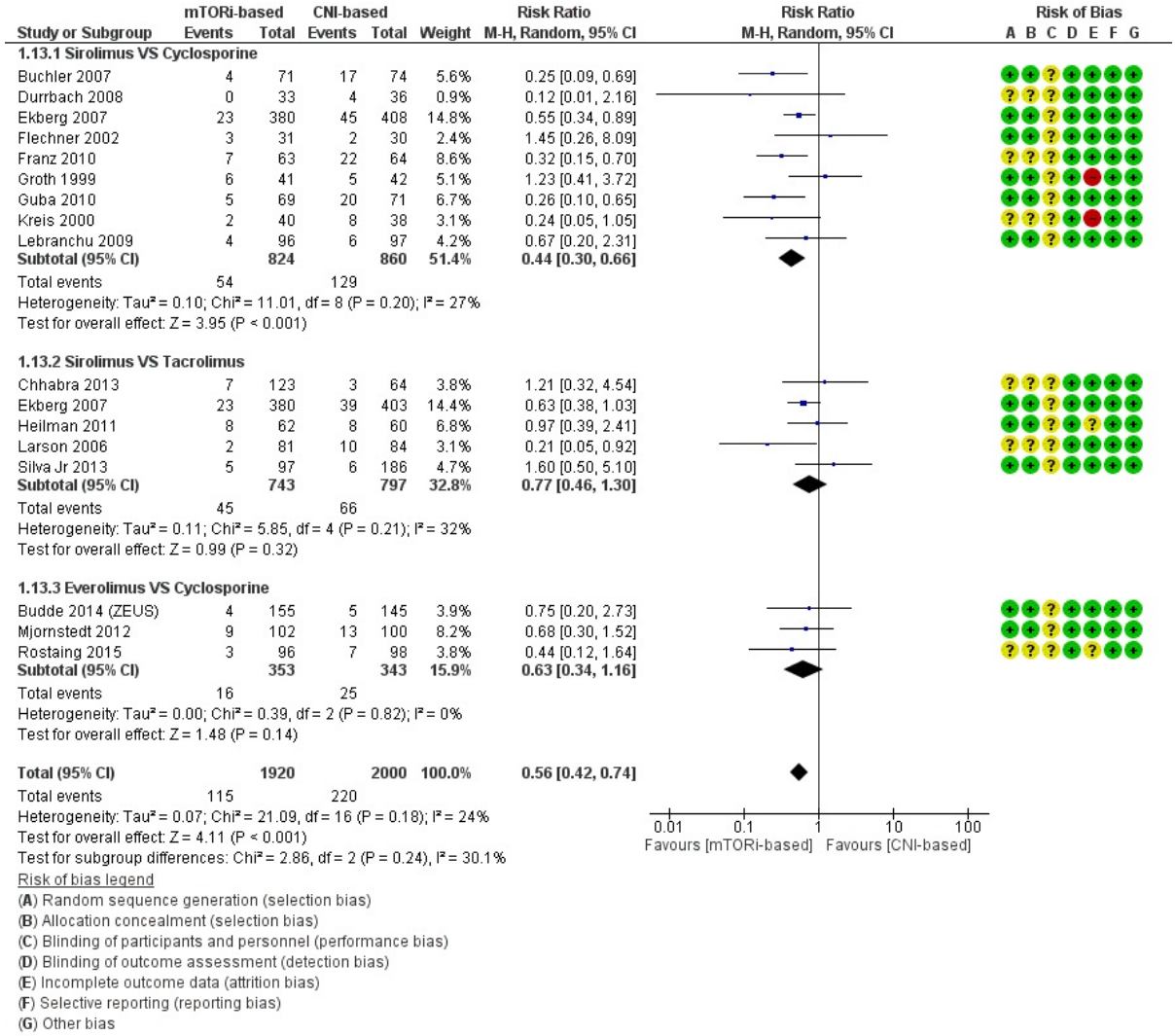


Figure S20: Forest plot, comparison 1, BKPyV infection subgroup analysis early vs late introduction of mTORi

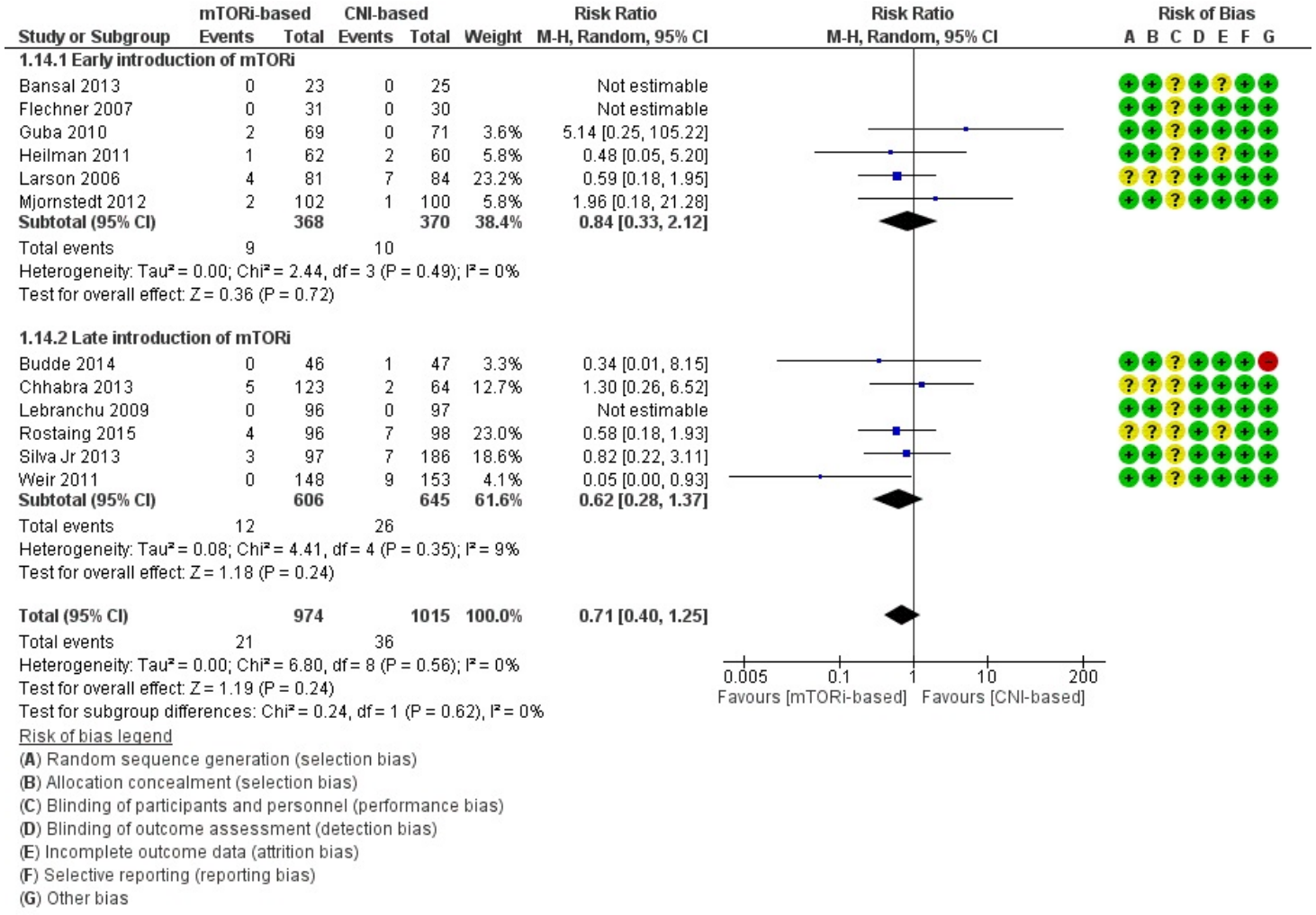


Figure S21: Forest plot, comparison 1, BKPyV infection subgroup analysis type of CNI and type of mTORi

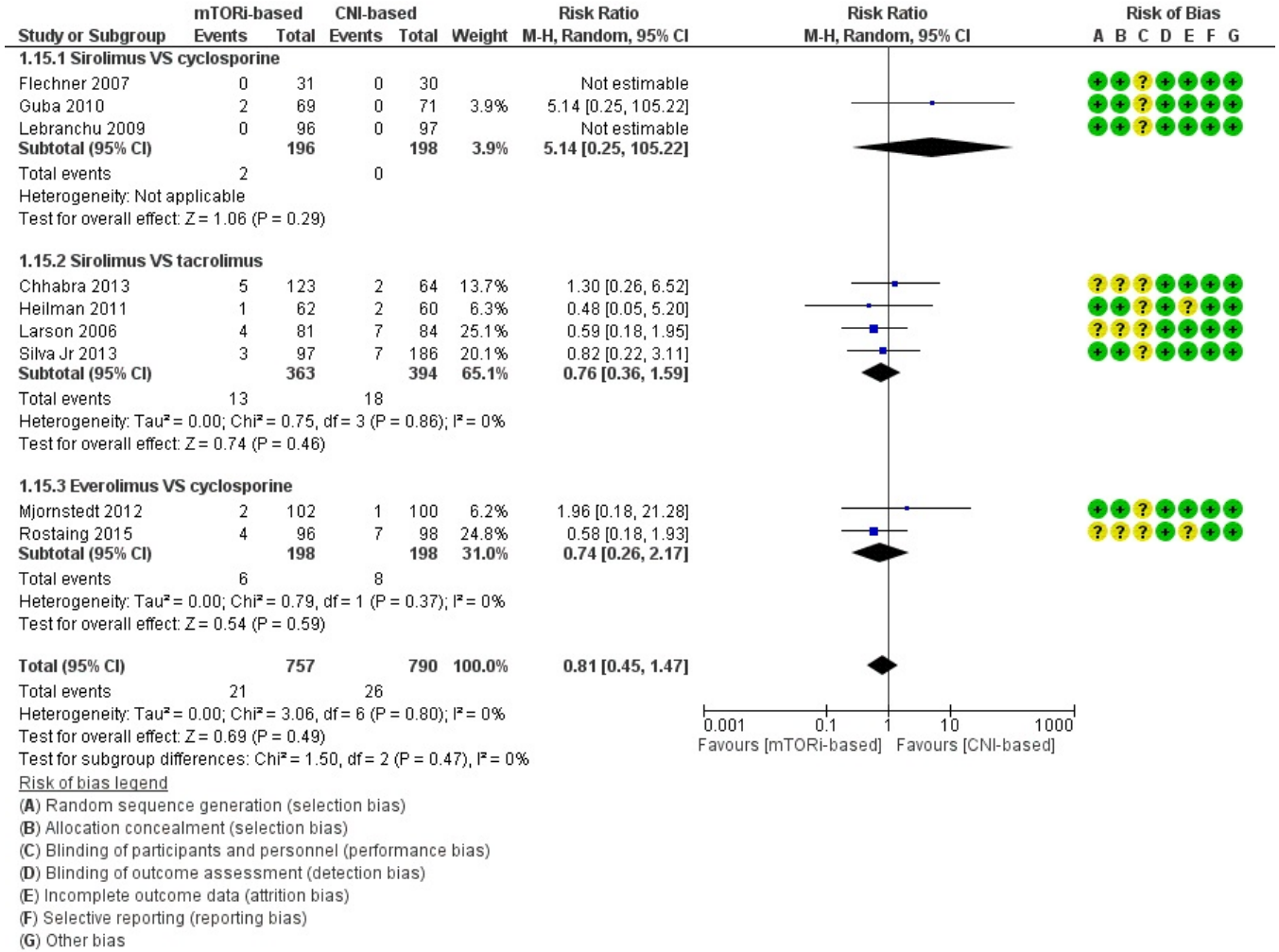


Figure S22: Forest plot, comparison 1, acute rejection subgroup analysis early vs late introduction of mTORi

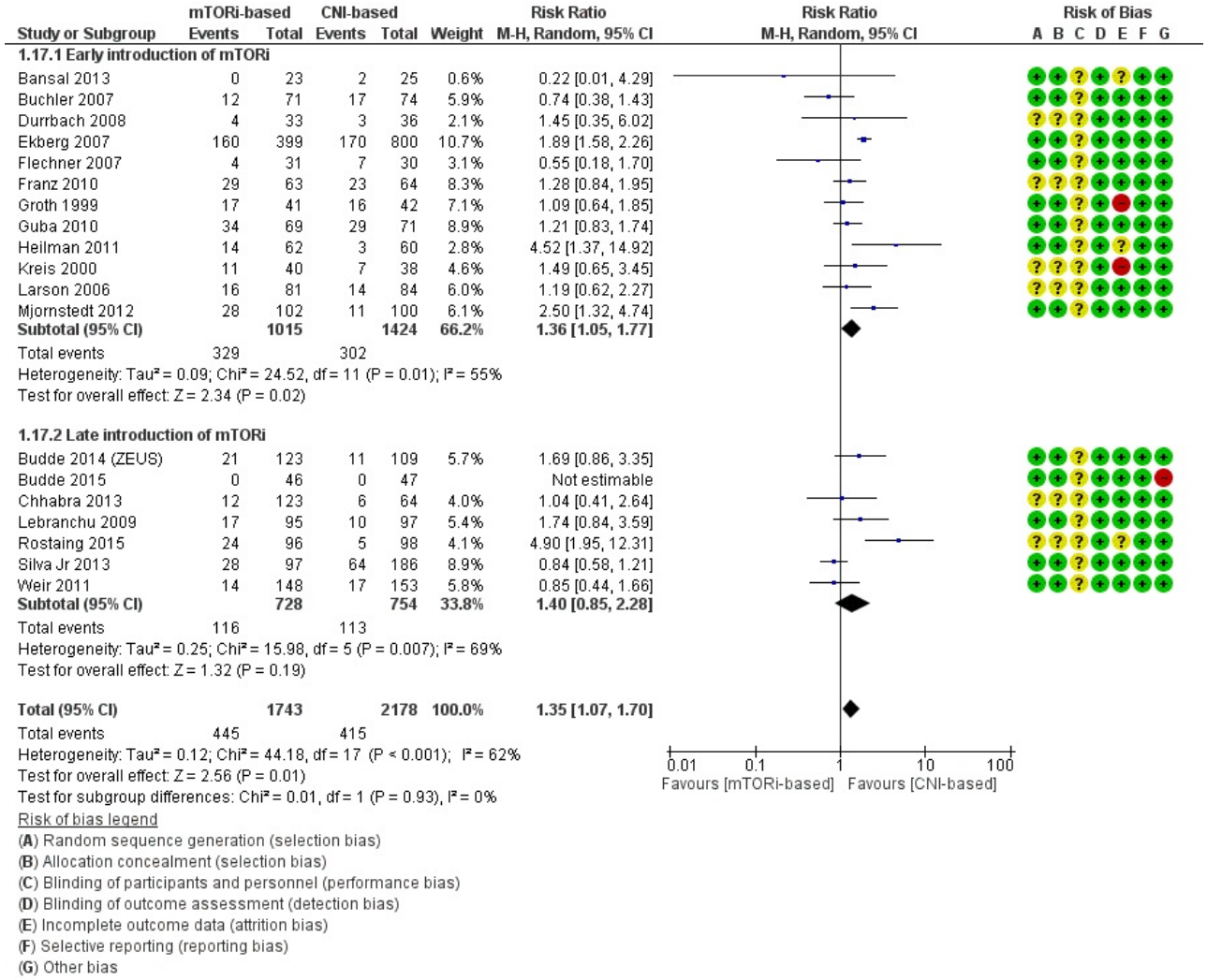


Figure S23: Forest plot, comparison 1, acute rejection subgroup analysis type of CNI and type of mTORi

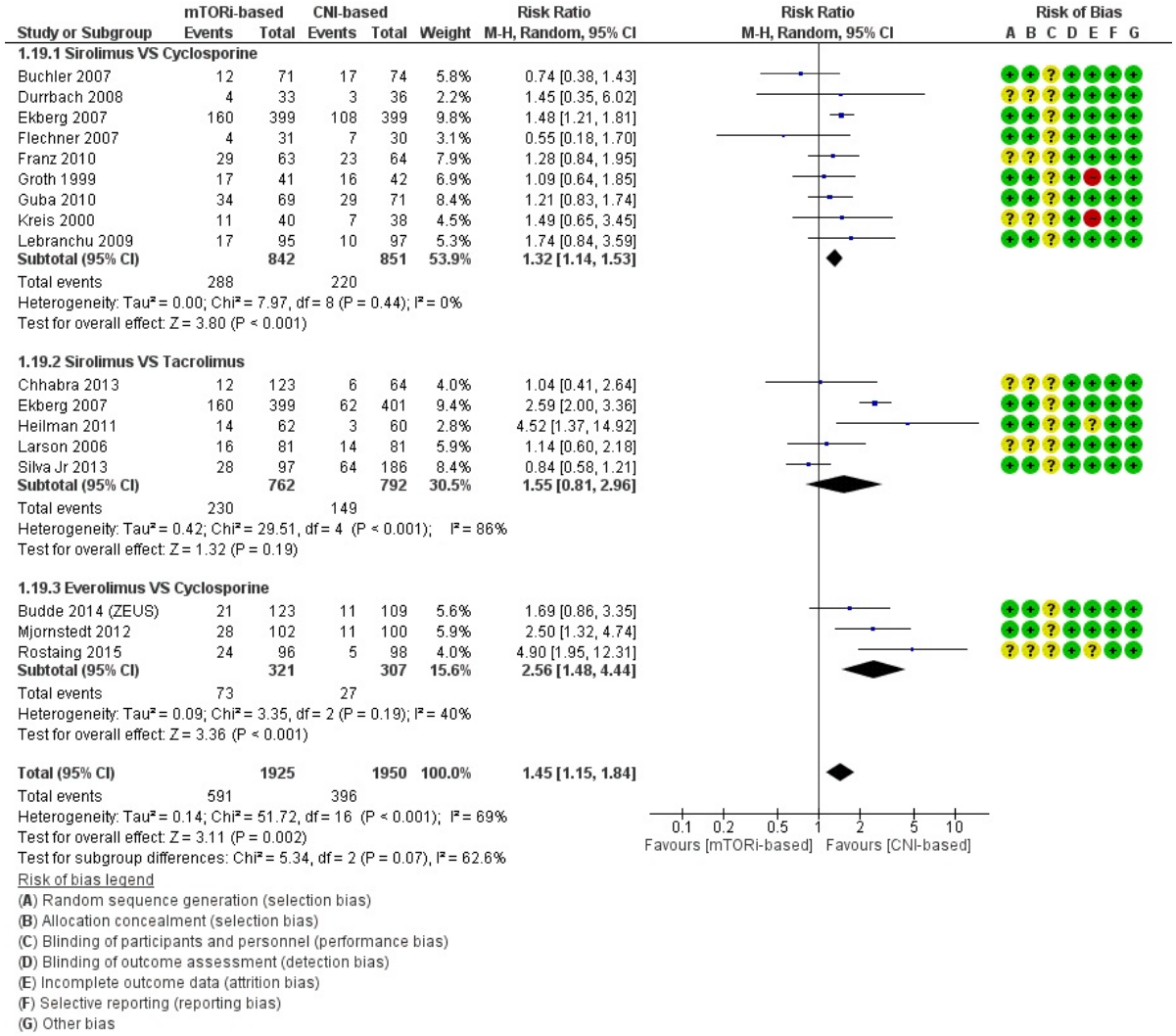


Figure S24: Forest plot, comparison 1, proteinuria subgroup analysis early vs late introduction of mTORi

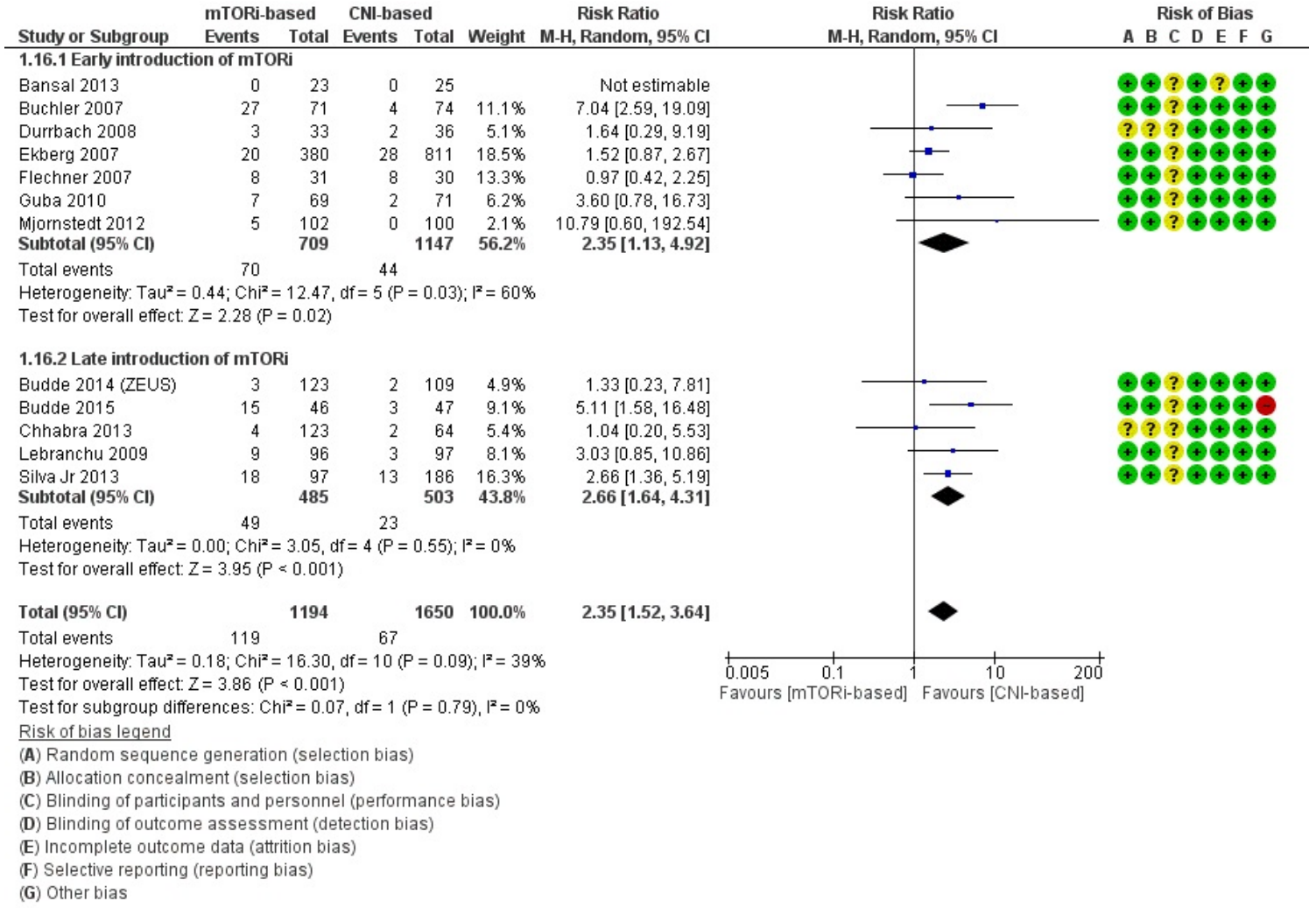


Figure S25: Forest plot, comparison 1, proteinuria subgroup analysis type of CNI and type of mTORi

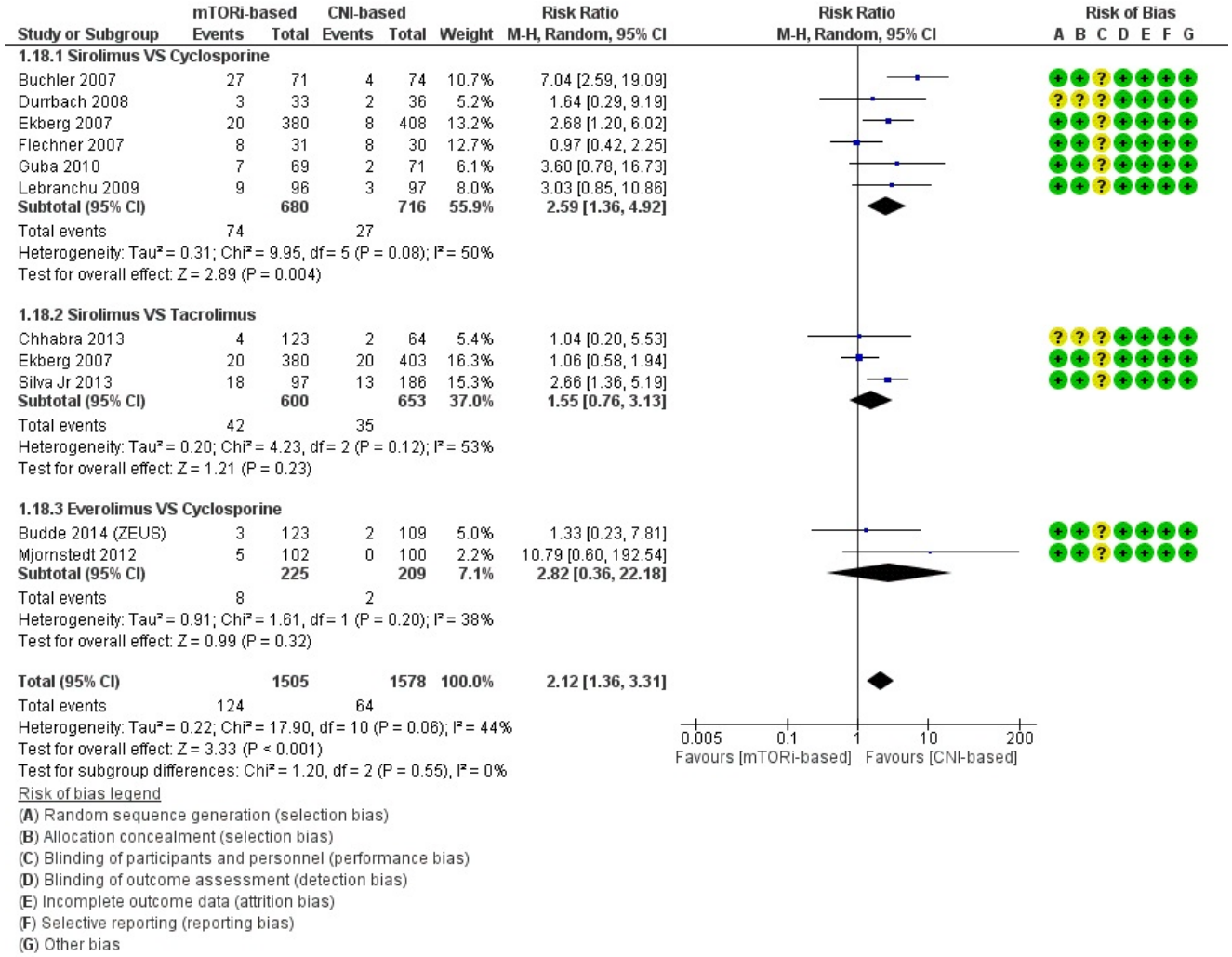
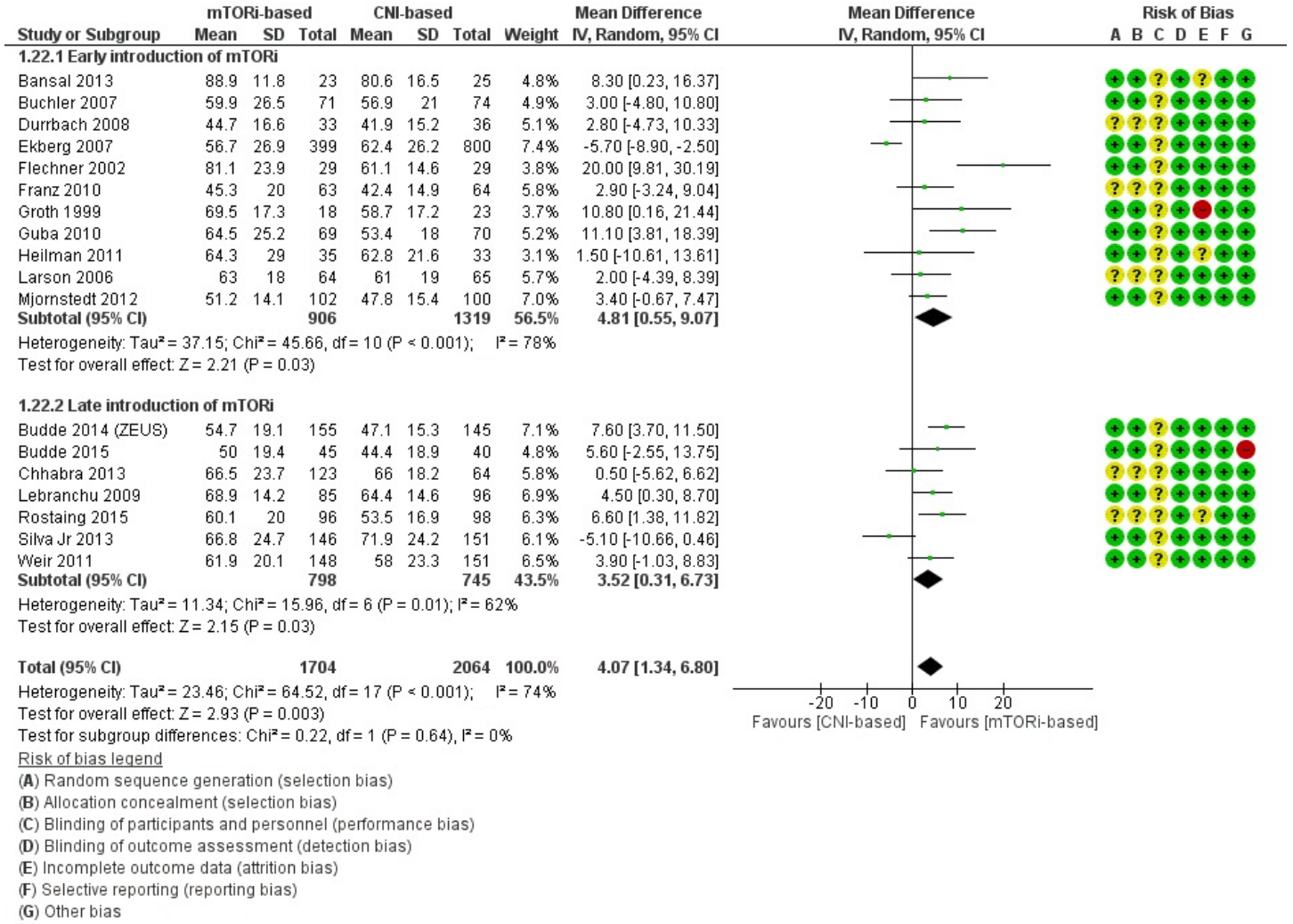


Figure S26: Forest plot, comparison 1, estimated GFR subgroup analysis early vs late introduction of mTORi



Risk of bias legend

(**A**) Random sequence generation (selection bias)

(**B**) Allocation concealment (selection bias)

(**C**) Blinding of participants and personnel (performance bias)

(**D**) Blinding of outcome assessment (detection bias)

(**E**) Incomplete outcome data (attrition bias)

(**F**) Selective reporting (reporting bias)

(**G**) Other bias

Figure S27: Forest plot, comparison 1, estimated GFR subgroup analysis type of CNI and type of mTORi