

Clinical trials of glitazone

TrialResults-center www.trialresultscenter.org

1 diabetes type 2

Trial	Treatments	Patients	Trials design and methods
rosiglitazone vs			
AVM100264 [NCT00359112] n=294/302 follow-up: 52 wk	Rosiglitazone and metformin versus Metformin and sulfonylurea	Overweight patients with type 2 DM poorly controlled on Met	Parallel groups
BRL 49653C/185 n=563/142 follow-up: 32 wk	Rosiglitazone with or without metformin versus Usual care with or without metformin	patients with type 2 diabetes	Parallel groups
SB-712753/007 n=314/154 follow-up: 32 wk	Rosiglitazone with or without metformin versus Metformin	patients with type 2 diabetes without previous drug therapy	Parallel groups
SB-712753/009 n=162/160 follow-up: 24 wk	Rosiglitazone, metformin, and insulin versus Insulin	patients with type 2 diabetes with insulin	Parallel groups
rosiglitazone vs control			
Wang , 2005 n=NA follow-up: 6 months	rosiglitazone 4 mg/d versus control	patients with diabetes and CAD who had undergone percutaneous coronary intervention	Parallel groups open
rosiglitazone vs glyburide			
49653/020 n=391/207 follow-up: 52 wk	Rosiglitazone versus Glyburide	patients with type 2 diabetes	Parallel groups
49653/079 n=203/106 follow-up: 26 wk	Rosiglitazone with or without glyburide versus Glyburide	patients with type 2 diabetes poorly controlled on maximum dose of Gly	Parallel groups
49653/080 n=104/99 follow-up: 156 wk	Rosiglitazone versus Glyburide	patients with type 2 diabetes	Parallel groups
49653/097 n=122/120 follow-up: 156 wk	Rosiglitazone versus Glyburide	patients with type 2 diabetesDM	Parallel groups

continued...

Trial	Treatments	Patients	Trials design and methods
49653/143 [NCT00333723] n=121/124 follow-up: 24 wk	Rosiglitazone and glyburide versus Glyburide	Type 2 DM poorly controlled on glyburide	Parallel groups
rosiglitazone vs glyburide (add on MET)			
49653/137 [NCT00500955] n=204/185 follow-up: 32 wk	Rosiglitazone and metformin versus Glyburide and metformin	patients with type 2 diabetes	Parallel groups
pioglitazone vs metformin			
EC404 n=597/597 follow-up: 52 wk	Pioglitazone versus Metformin	patients with type 2 diabetes	Parallel groups
rosiglitazone vs metformin			
49653/093 n=213/109 follow-up: 26 wk	Rosiglitazone with or without metformin versus Metformin	patients with type 2 diabetes poorly controlled on Met	Parallel groups
49653/094 n=232/116 follow-up: 26 wk	Rosiglitazone and metformin versus Metformin	Type 2 DM poorly controlled on Met	Parallel groups
pioglitazone + sulfonylurea vs metformin + sulfonylurea			
EC409 n=319/320 follow-up: 104 wk	Pioglitazone + sulfonylurea versus Metformin + sulfonylurea	patients with type 2 diabetes	Parallel groups
rosiglitazone vs metformin/sulfonylurea			
RECORD , 2013 [NCT00379769] n=NA follow-up:	-	-	
pioglitazone vs placebo			
PROACTIVE [NCT00174993] n=2605/2633 follow-up: 34.5 months	oral pioglitazone titrated from 15 mg to 45 mg versus placebo	patients with type 2 diabetes who had evidence of macrovascular disease.	
IRIS , 2016 [NCT00091949] n=NA	-	-	

continued...

Trial	Treatments	Patients	Trials design and methods
PNFP-001 n=329/79 follow-up: 26 wk	Pioglitazone versus Placebo	patients with type 2 diabetes	Parallel groups
PNFP-012 n=176/84 follow-up: 24 wk	Pioglitazone versus Placebo	patients with type 2 diabetes	Parallel groups
PNFP-026 n=101/96 follow-up: 16 wk	Pioglitazone versus Placebo	patients with type 2 diabetes	Parallel groups
PROactive , 2005 [NCT00174993] n=2605/2633 follow-up: 34.5 mo	pioglitazone titrated from 15 mg to 45 mg versus placebo	Inadequately controlled patients with type 2 diabetes who had evidence of macrovascular disease	Parallel groups double blind 19 European countries
rosiglitazone vs placebo			
49653/011 n=357/176 follow-up: 24 wk	Rosiglitazone versus Placebo	patients with type 2 diabetes	Parallel groups
DREAM rosiglitazone , 2006 [NCT00095654] n=2365/2634 follow-up: 3 years (median)	rosiglitazone 8 mg daily versus placebo	patients with impaired fasting glucose or impaired glucose tolerance, or both	Parallel groups double blind 21 countries
49653/128 n=39/38 follow-up: 28 wk	Rosiglitazone versus Placebo	patients with type 2 diabetes on concurrent Su	Parallel groups
49653/134 n=561/276 follow-up: 28 wk	Rosiglitazone versus Placebo	patients with type 2 diabetes on Gly and Met	Parallel groups
49653/136 n=148/143 follow-up: 26 wk	Rosiglitazone versus Placebo	patients with type 2 diabetes and chronic renal failure on Su, insulin, or both	Parallel groups
49653/330 n=1/382 follow-up: 52 wk	Rosiglitazone versus Placebo	Chronic psoriasis	Parallel groups
49653/331 n=706/325 follow-up: 52 wk	Rosiglitazone versus Placebo	Chronic psoriasis	Parallel groups

continued...

Trial	Treatments	Patients	Trials design and methods
AVA100193 n=394/124 follow-up: 24 wk	Rosiglitazone versus Placebo	Mild-to-moderate Alzheimers disease	Parallel groups
BRL 49653/334 [NCT00306644] n=278/279 follow-up: 52 wk	Rosiglitazone versus Placebo	patients with type 2 diabetes or insulin resistance syndrome	Parallel groups
rosiglitazone and metformin vs placebo			
CANOE , 2010 [NCT00116932] n=103/104 follow-up: 3.9y (median)	rosiglitazone (2 mg) and metformin (500 mg) twice-daily versus placebo	patients with impaired glucose tolerance	Parallel groups double-blind
troglitazone vs placebo			
TRIPOD (Buchanan) , 2002 n=133/133 follow-up: 30 months (median)	troglitazone 400 mg once daily versus placebo	Hispanic women with previous gestational diabetes	Parallel groups double blind USA
US DDP troglitazone (Knowler) , 2005 n=585/582 follow-up: 0.9 year	troglitazone versus double placebo	nondiabetic patients with elevated glucose and high risk for diabetes	Parallel groups double blind USA
rosiglitazone vs placebo (add on glicazide)			
49653/145 n=231/242 follow-up: 26 wk	Rosiglitazone and gliclazide versus Gliclazide	patients with type 2 diabetes	Parallel groups
rosiglitazone vs placebo (add on glimepiride)			
49653/234 n=116/61 follow-up: 26 wk	Rosiglitazone and glimepiride versus Glimepiride	patients with type 2 diabetes	Parallel groups
rosiglitazone vs placebo (add on glipizide)			
49653/135 n=116/111 follow-up: 104 wk	Rosiglitazone and glipizide versus Glipizide	Elderly patients with type 2 DM	Parallel groups
rosiglitazone vs placebo (add on glyburide)			
100684 [NCT01045590] n=43/47 follow-up: 52 wk	Rosiglitazone and glyburide versus Glyburide	Korean patients with type 2 DM	Parallel groups

continued...

Trial	Treatments	Patients	Trials design and methods
49653/127 n=56/58 follow-up: 26 wk	Rosiglitazone and glyburide versus Glyburide	patients with type 2 diabetespoorly controlled on Gly	Parallel groups
49653/162 n=168/172 follow-up: 26 wk	Rosiglitazone and glyburide versus Glyburide	patients with type 2 diabetes	Parallel groups
pioglitazone + insulin vs placebo (add on insulin)			
OPI-502 n=110/112 follow-up: 20 wk	Pioglitazone + insulin versus Placebo + insulin	Insulin-dependent DM-2	Parallel groups
PNFP-014 n=379/187 follow-up: 16 wk	Pioglitazone insulin versus Placebo + insulin	patients with type 2 diabetes	Parallel groups
rosiglitazone vs placebo (add on insulin)			
49653/085 n=138/139 follow-up: 26 wk	Rosiglitazone and insulin versus Insulin	patients with type 2 diabetes	Parallel groups
49653/095 n=196/96 follow-up: 26 wk	Rosiglitazone and insulin versus Insulin	patients with type 2 diabetes poorly controlled on insulin	Parallel groups
BRL 49653/347 [NCT00054782] n=418/212 follow-up: 24 wk	Rosiglitazone and insulin versus Insulin	patients with type 2 diabetes poorly controlled on insulin	Parallel groups
pioglitazone + metformin vs placebo (add on MET)			
PNFP-027 n=168/160 follow-up: 16 wk	Pioglitazone + metforminrea versus Placebo +metformin	patients with type 2 diabetes	Parallel groups
rosiglitazone vs placebo (add on MET)			
49653/284 [NCT00501020] n=382/384 follow-up: 24 wk	Rosiglitazone and metformin versus Metformin	patients with type 2 diabetes	Parallel groups
712753/008 [NCT00241605] n=284/135 follow-up: 48 wk	Rosiglitazone and metformin versus Metformin	Type 2 DM poorly controlled on Met	Parallel groups

continued...

Trial	Treatments	Patients	Trials design and methods
SB-712753/002 n=288/280 follow-up: 24 wk	Rosiglitazone and metformin versus Metformin	patients with type 2 diabetes poorly controlled	Parallel groups
SB-712753/003 n=254/272 follow-up: 32 wk	Rosiglitazone and metformin versus Metformin	Mild type 2 DM	Parallel groups
rosiglitazone vs placebo (add on SU)			
49653/015 n=395/198 follow-up: 24 wk	Rosiglitazone and sulfonylurea versus Sulfonylurea	patients with type 2 diabetes	Parallel groups
49653/125 [NCT00422955] n=175/173 follow-up: 26 wk	Rosiglitazone and sulfonylurea versus Sulfonylurea	patients with type 2 diabetes	Parallel groups
49653/132 n=442/112 follow-up: 24 wk	Rosiglitazone and sulfonylurea versus Sulfonylurea	Patients in China with type 2 DM	Parallel groups
49653/147 n=89/88 follow-up: 26 wk	Rosiglitazone and sulfonylurea versus Sulfonylurea	Indo-Asian patients with type 2 diabetes	Parallel groups
pioglitazone vs rosiglitazone			
GLAI [NCT00331487] n=369/366 follow-up: 24 wk	Pioglitazone versus Rosiglitazone	patients with type 2 diabetes and dyslipidemia	Parallel groups
pioglitazone vs sulfonylurea			
EC405 n=624/626 follow-up: 52 wk	Pioglitazone versus Sulfonylurea	patients with type 2 diabetes	Parallel groups
OPI-501 n=251/251 follow-up: 56 wk	Pioglitazone versus Sulfonylurea	Recently diagnosed DM-2	Parallel groups
OPI-504 [NCT00521820] n=262/256 follow-up: 24 wk	Pioglitazone versus Sulfonylurea	patients with type 2 diabetes and mild to moderate congestive heart failure	Parallel groups

continued...

Trial	Treatments	Patients	Trials design and methods
OPI-506 [NCT00494312] n=1051/1046 follow-up: 156 wk	Pioglitazone versus Sulfonylurea	Inadequately controlled DM-2	Parallel groups
OPI-520 [NCT00521742] n=151/149 follow-up: 52 wk	Pioglitazone versus Sulfonylurea	Inadequately controlled DM-2 with mild cardiac disease(New York Heart Association Class I)	Parallel groups
pioglitazone + sulfonylurea vs sulfonylurea			
PNFP-010 n=373/187 follow-up: 16 wk	Pioglitazone + sulfonylurea versus Sulfonylurea	patients with type 2 diabetes	Parallel groups
pioglitazone + metformin vs sulfonylurea + metformin			
EC410 n=317/313 follow-up: 104 wk	Pioglitazone + metformin versus Sulfonylurea + metformin	patients with type 2 diabetes	Parallel groups
rosiglitazone vs usual care			
49653/211 n=110/114 follow-up: 52 wk	Rosiglitazone and usual care versus Usual care	Type 2 DM with CHF	Parallel groups
pioglitazone vs vildagliptin			
Bolli , 2008 n=295/295 follow-up: 52 weeks	vildagliptin (50 mg b.i.d.) versus pioglitazone (30 mg daily)	-	
rosiglitazone pioglitazone vs placebo			
TIDE ongoing [NCT00879970] n=16000 follow-up:	pioglitazone or rosiglitazone versus placebo	patients with type 2 diabetes who have a history of or are at risk for cardiovascular disease	Factorial plan double-blind USA
pioglitazone vs standard glucose-lowering drugs			
PPAR ongoing [NCT00212004] n=NA follow-up:	pioglitazone versus sulfonylurea agents	diabetes patients with a history of prior myocardial infarction	Parallel groups Japan
glitazone vs conventional treatment			

continued...

Trial	Treatments	Patients	Trials design and methods
PROactive , 2005 [NCT00174993] n=2605/2633 follow-up: 34.5 months	pioglitazone titrated 15-45 mg daily versus standard treatment	patients with type 2 diabetes who had evidence of macrovascular disease	Parallel groups double blind 19 countries

More details and results :

- insulin sensitizers - glitazones for diabetes type 2 in all type of patients at <http://www.trialresultscenter.org/go-Q321>
- prevention for diabetes type 2 in all type of patients at <http://www.trialresultscenter.org/go-Q341>
- insulin sensitizers - glitazones for diabetes type 2 in patients with cardiovascular disease at <http://www.trialresultscenter.org/go-Q376>
- insulin sensitizer for diabetes type 2 in all type of patients at <http://www.trialresultscenter.org/go-Q377>
- insulin sensitizer for diabetes type 2 in patients with cardiovascular disease at <http://www.trialresultscenter.org/go-Q378>
- insulin secretagogues for diabetes type 2 in all type of patients at <http://www.trialresultscenter.org/go-Q409>
- prevention for diabetes type 2 in people with impaired glucose tolerance at <http://www.trialresultscenter.org/go-Q416>
- intensive therapy for diabetes type 2 in all type of patients at <http://www.trialresultscenter.org/go-Q459>
- antidiabetic drugs for diabetes type 2 in patients inadequately controlled on monotherapy at <http://www.trialresultscenter.org/go-Q512>
- antidiabetic drugs for diabetes type 2 in patients inadequately controlled with insulin at <http://www.trialresultscenter.org/go-Q513>
- insulin secretagogues - DPP-4 inhibitors for diabetes type 2 in all types of patients at <http://www.trialresultscenter.org/go-Q550>
- glucose lowering for cardiovascular prevention for diabetes type 2 in all type of patients at <http://www.trialresultscenter.org/go-Q576>

References

AVM100264 , :
 BRL 49653C/185 , :
 SB-712753/007 , :
 SB-712753/009 , :
 Wang, 2005:

Wang G, Wei J, Guan Y, Jin N, Mao J, Wang X, Peroxisome proliferator-activated receptor-gamma agonist rosiglitazone reduces clinical inflammatory responses in type 2 diabetes with coronary artery disease after coronary angioplasty. *Metabolism* 2005;54:590-7. [[15877288](#)] [10.1016/j.metabol.2004.11.017](#)

49653/020 , :

49653/079 , :

49653/080 , :

49653/097 , :

49653/143 , :

49653/137 , :

EC404 , :

49653/093 , :

49653/094 , :

EC409 , :

RECORD, 2013:

Home PD, Pocock SJ, Beck-Nielsen H, Curtis PS, Gomis R, Hanefeld M, Jones NP, Komajda M, McMurray JJ Rosiglitazone evaluated for cardiovascular outcomes in oral agent combination therapy for type 2 diabetes (RECORD): a multicentre, randomised, open-label trial. *Lancet* 2009 Jun 20;373:2125-35 [[19501900](#)]

Home PD, Pocock SJ, Beck-Nielsen H, Gomis R, Hanefeld M, Jones NP, Komajda M, McMurray JJ Rosiglitazone evaluated for cardiovascular outcomes—an interim analysis. *N Engl J Med* 2007 Jul 5;357:28-38 [[17551159](#)]

Mahaffey KW, Hafley G, Dickerson S, Burns S, Tourt-Uhlig S, White J, Newby LK, Komajda M, McMurray J, Bigelow R, Home PD, Lopes RD Results of a reevaluation of cardiovascular outcomes in the RECORD trial. *Am Heart J* 2013 Aug;166:240-249.e1 [[23895806](#)]

PROACTIVE, :

Dormandy JA, Charbonnel B, Eckland DJ, Erdmann E, Massi-Benedetti M, Moules IK, Skene AM, Tan MH, Lefbvre PJ, Murray GD, Standl E, Wilcox RG, Wilhelmsen L, Betteridge J, Birkeland K, Golay A, Heine RJ, Koranyi L, Laakso M, Mokn M, Norkus A, Pirags V, Po Secondary prevention of macrovascular events in patients with type 2 diabetes in the PROactive Study (PROspective pioglitAzone Clinical Trial In macroVascular Events): a randomised controlled trial. *Lancet* 2005;366:1279-89 [[16214598](#)]

IRIS, 2016:

Kernan WN, Viscoli CM, Furie KL, Young LH, Inzucchi SE, Gorman M, Guarino PD, Lovejoy AM, Peduzzi PN, Conwit R, Brass LM, Schwartz GG, Adams HP Jr, Berger L, Carolei A, Clark W, Coull B, Ford GA, Kleindorfer D, O'Leary JR, Parsons MW, Ringleb P, Sen S, Sp Pioglitazone after Ischemic Stroke or Transient Ischemic Attack. *N Engl J Med* 2016 Apr 7;374:1321-31 [[26886418](#)] [10.1056/NEJMoa1506930](#)

PNFP-001 , :

PNFP-012 , :

PNFP-026 , :

PROactive, 2005:

Dormandy JA, Charbonnel B, Eckland DJ, Erdmann E, Massi-Benedetti M, Moules IK, Skene AM, Tan MH, Lefebvre PJ, Murray GD, Standl E, Wilcox RG, Wilhelmsen L, Betteridge J, Birkeland K, Golay A, Heine RJ, Koranyi L, Laakso M, Mokan M, Norkus A, Pirags V, Po Secondary prevention of macrovascular events in patients with type 2 diabetes in the PROactive Study (PROspective pioglitAzone Clinical Trial In macroVascular Events): a randomised controlled trial. *Lancet* 2005 Oct 8;366:1279-89 [[16214598](#)]

49653/011 , :

DREAM rosiglitazone, 2006:

Gerstein HC, Yusuf S, Bosch J, Pogue J, Sheridan P, Dinccag N, Hanefeld M, Hoogwerf B, Laakso M, Mohan V, Shaw J, Zinman B, Holman RR Effect of rosiglitazone on the frequency of diabetes in patients with impaired glucose tolerance or impaired fasting glucose: a randomised controlled trial. Lancet 2006 Sep 23;368:1096-105 [[16997664](#)]

49653/128 , :

49653/134 , :

49653/136 , :

49653/330 , :

49653/331 , :

AVA100193 , :

BRL 49653/334 , :

CANOE, 2010:

Zinman B, Harris SB, Neuman J, Gerstein HC, Retnakaran RR, Raboud J, Qi Y, Hanley AJ Low-dose combination therapy with rosiglitazone and metformin to prevent type 2 diabetes mellitus (CANOE trial): a double-blind randomised controlled study. Lancet 2010 Jul 10;376:103-11 [[20605202](#)] [10.1016/S0140-6736\(10\)60746-5](#)

TRIPOD (Buchanan), 2002:

Buchanan TA, Xiang AH, Peters RK, Kjos SL, Marroquin A, Goico J, Ochoa C, Tan S, Berkowitz K, Hodis HN, Azen SP Preservation of pancreatic beta-cell function and prevention of type 2 diabetes by pharmacological treatment of insulin resistance in high-risk hispanic women. Diabetes 2002;51:2796-803 [[12196473](#)]

US DDP troglitazone (Knowler), 2005:

Knowler WC, Hamman RF, Edelstein SL, Barrett-Connor E, Ehrmann DA, Walker EA, Fowler SE, Nathan DM, Kahn SE Prevention of type 2 diabetes with troglitazone in the Diabetes Prevention Program. Diabetes 2005;54:1150-6 [[15793255](#)]

49653/145 , :

49653/234 , :

49653/135 , :

100684 , :

49653/127 , :

49653/162 , :

OPI-502, :

PNFP-014, :

49653/085 , :

49653/095 , :

BRL 49653/347 , :

PNFP-027, :

49653/284 , :

712753/008 , :

SB-712753/002 , :

SB-712753/003 , :

49653/015 , :

49653/125 , :

49653/132 , :

49653/147 , :

GLAI, :

EC405, :

OPI-501, :

OPI-504, :

OPI-506, 0:

OPI-520, :

PNFP-010, :

EC410, :

49653/211 , :

Bolli, 2008:

Bolli G, Dotta F, Rochotte E, Cohen SE Efficacy and tolerability of vildagliptin vs. pioglitazone when added to metformin: a 24-week, randomized, double-blind study. *Diabetes Obes Metab* 2008;10:82-90 [[18034842](#)] [10.1111/j.1463-1326.2007.00820.x](#)

Bolli G, Dotta F, Colin L, Minic B, Goodman M Comparison of vildagliptin and pioglitazone in patients with type 2 diabetes inadequately controlled with metformin. *Diabetes Obes Metab* 2009;11:589-95 [[19515179](#)] [10.1111/j.1463-1326.2008.01023.x](#)

TIDE, :

ongoing trial NCT00879970

PPAR, :

ongoing trial NCT00212004

PROactive, 2005:

Charbonnel B, Dormandy J, Erdmann E, Massi-Benedetti M, Skene A The prospective pioglitazone clinical trial in macrovascular events (PROactive): can pioglitazone reduce cardiovascular events in diabetes? Study design and baseline characteristics of 5238 patients. *Diabetes Care* 2004;27:1647-53 [[15220241](#)]

Dormandy JA, Charbonnel B, Eckland DJ, Erdmann E, Massi-Benedetti M, Moules IK, Skene AM, Tan MH, Lefbvre PJ, Murray GD, Standl E, Wilcox RG, Wilhelmsen L, Betteridge J, Birkeland K, Golay A, Heine RJ, Korny L, Laakso M, Mokn M, Norkus A, Pirags V, Po Secondary prevention of macrovascular events in patients with type 2 diabetes in the PROactive Study (PROspective pioglitAzone Clinical Trial In macroVascular Events): a randomised controlled trial. *Lancet* 2005;366:1279-89 [[16214598](#)] [10.1016/S0140-6736\(05\)67528-9](#)

Wilcox R, Kupfer S, Erdmann E Effects of pioglitazone on major adverse cardiovascular events in high-risk patients with type 2 diabetes: results from PROspective pioglitAzone Clinical Trial In macro Vascular Events (PROactive 10). *Am Heart J* 2008;155:712-7 [[18371481](#)] [10.1016/j.ahj.2007.11.029](#)

2 percutaneous coronary intervention

Trial	Treatments	Patients	Trials design and methods
rosiglitazone vs placebo			
PROVIDENCE <i>ongoing</i> [NCT00116792] n=NA follow-up:	Rosiglitazone versus placebo	type 2 diabetic patients with de Novo Coronary Lesions	Parallel groups double blind

More details and results :

- restenosis prevention for percutaneous coronary intervention in all type of patients at <http://www.trialresultscenter.org/go-Q318>

References

PROVIDENCE, :

ongoing trial NCT00116792

3 impaired fasting glucose

Trial	Treatments	Patients	Trials design and methods
rosiglitazone vs placebo			
DREAM rosiglitazone , 2006 [NCT00095654] n=2365/2634 follow-up: 3 years (median)	rosiglitazone 8 mg daily versus placebo	patients with impaired fasting glucose or impaired glucose tolerance, or both	Parallel groups double blind 21 countries
rosiglitazone and metformin vs placebo			
CANOE , 2010 [NCT00116932] n=103/104 follow-up: 3.9y (median)	rosiglitazone (2 mg) and metformin (500 mg) twice-daily versus placebo	patients with impaired glucose tolerance	Parallel groups double-blind

More details and results :

- prevention for impaired fasting glucose in all type of patients at <http://www.trialresultscenter.org/go-Q342>

References

DREAM rosiglitazone, 2006:

Gerstein HC, Yusuf S, Bosch J, Pogue J, Sheridan P, Dinccag N, Hanefeld M, Hoogwerf B, Laakso M, Mohan V, Shaw J, Zinman B, Holman RR Effect of rosiglitazone on the frequency of diabetes in patients with impaired glucose tolerance or impaired fasting glucose: a randomised controlled trial. *Lancet* 2006 Sep 23;368:1096-105 [[16997664](#)]

CANOE, 2010:

Zinman B, Harris SB, Neuman J, Gerstein HC, Retnakaran RR, Raboud J, Qi Y, Hanley AJ Low-dose combination therapy with rosiglitazone and metformin to prevent type 2 diabetes mellitus (CANOE trial): a double-blind randomised controlled study. *Lancet* 2010 Jul 10;376:103-11 [[20605202](#)] [10.1016/S0140-6736\(10\)60746-5](#)

Entry terms: pioglitazone, Actos, rosiglitazone, Avandia, metformin, Metformin, Dimethylguanylguanidine, Dimethylbiguanidine, Glucophage, , troglitazone