評価対象論文リスト（要因：能動喫煙、アウトカム：糖尿病）

評価判定日：2023/3/24

①既存の系統的レビュー・メタ解析・統合解析

1	Akter S, Goto A, Mizoue T. Smoking and the risk of type 2 diabetes in Japan: A systematic review and meta-analysis. J Epidemiol. 2017;27(12):553-561. doi:10.1016/j.je.2016.12.017

②日本人集団の個別疫学研究

2	Hayashino Y, Fukuhara S, Okamura T, et al. A prospective study of passive smoking and risk of diabetes in a cohort of workers: the High-Risk and Population Strategy for Occupational Health Promotion (HIPOP-OHP) study [published correction appears in Diabetes Care. 2008 Jul;31(7):1471]. *Diabetes Care* . 2008;31(4):732-734. doi:10.2337/dc07-1905
3	Nakanishi N, Nakamura K, Matsuo Y, Suzuki K, Tatara K. Cigarette smoking and risk for impaired fasting glucose and type 2 diabetes in middle-aged Japanese men. *Ann Intern Med* . 2000;133(3):183-191. doi:10.7326/0003-4819-133-3-200008010-00009
4	Sairenchi T, Iso H, Nishimura A, et al. Cigarette smoking and risk of type 2 diabetes mellitus among middle-aged and elderly Japanese men and women. *Am J Epidemiol* . 2004;160(2):158-162. doi:10.1093/aje/kwh183
5	Teratani T, Morimoto H, Sakata K, et al. Dose-response relationship between tobacco or alcohol consumption and the development of diabetes mellitus in Japanese male workers. *Drug Alcohol Depend* . 2012;125(3):276-282. doi:10.1016/j.drugalcdep.2012.03.002
6	Kawakami N, Takatsuka N, Shimizu H, Ishibashi H. Effects of smoking on the incidence of non-insulin-dependent diabetes mellitus. Replication and extension in a Japanese cohort of male employees. *Am J Epidemiol* . 1997;145(2):103-109.
7	Nagaya T, Yoshida H, Takahashi H, Kawai M. Heavy smoking raises risk for type 2 diabetes mellitus in obese men; but, light smoking reduces the risk in lean men: a follow-up study in Japan. *Ann Epidemiol* . 2008;18(2):113-118. doi:10.1016/j.annepidem.2007.07.107
8	Uchimoto S, Tsumura K, Hayashi T, et al. Impact of cigarette smoking on the incidence of Type 2 diabetes mellitus in middle-aged Japanese men: the Osaka Health Survey. *Diabet Med* . 1999;16(11):951-955. doi:10.1046/j.1464-5491.1999.00173.x
9	Kaneto C, Toyokawa S, Miyoshi Y, Suyama Y, Kobayashi Y. Long-term weight change in adulthood and incident diabetes mellitus: MY Health Up Study. *Diabetes Res Clin Pract* . 2013;102(2):138-146. doi:10.1016/j.diabres.2013.08.011
10	Ide R, Hoshuyama T, Wilson D, Takahashi K, Higashi T. Periodontal disease and incident diabetes: a seven-year study. *J Dent Res* . 2011;90(1):41-46. doi:10.1177/0022034510381902
11	Fukui M, Tanaka M, Toda H, et al. Risk factors for development of diabetes mellitus, hypertension and dyslipidemia. *Diabetes Res Clin Pract* . 2011;94(1):e15-e18. doi:10.1016/j.diabres.2011.07.006
12	Morimoto A, Ohno Y, Tatsumi Y, et al. Risk of smoking and body mass index for incidence of diabetes mellitus in a rural Japanese population. *Prev Med* . 2012;54(5):341-344. doi:10.1016/j.ypmed.2012.02.016
13	Hilawe EH, Yatsuya H, Li Y, et al. Smoking and diabetes: is the association mediated by adiponectin, leptin, or C-reactive protein?. *J Epidemiol* . 2015;25(2):99-109. doi:10.2188/jea.JE20140055
14	Akter S, Okazaki H, Kuwahara K, et al. Smoking, Smoking Cessation, and the Risk of Type 2 Diabetes among Japanese Adults: Japan Epidemiology Collaboration on Occupational Health Study [published correction appears in PLoS One. 2015 Aug 25;10(8):e0137039. doi: 10.1371/journal.pone.0137039.. Nishiura, Chiro [corrected to Nishiura, Chihiro]]. *PLoS One* . 2015;10(7):e0132166. Published 2015 Jul 22. doi:10.1371/journal.pone.0132166

■系統的レビュー・メタ解析・統合解析

No	Author	Title	Year	Category	Relative risk (95% CI)	Magnitude of
1	Akter, S., et al.	Smoking and the risk of type 2 diabetes in Japan: A systematic review and meta-analysis	2017	Current smokers		
				Overall	1.38 (1.28–1.49)	↑
				Men	1.40 (1.27–1.55)	↑
				Women	1.42 (1.19–1.69)	↑
				Past smokers		
				Overall	1.19 (1.09–1.31)	↑
				Men	1.20 (1.06–1.35)	↑
				Women	1.18 (0.72–1.92)	-

■日本人集団の個別疫学研究

No	Author	Title	Year	Study period	Number of subjects for analysis	Source of subjects	Event followed	Definitions	Number of incident cases or deaths	Participant's race	Category	Number among cases	Relative risk (95%CI)	p for trend	Confounding variables considered	Magnitude of association
2	Hayashino, Y., et al.	A prospective study of passive smoking and risk of diabetes in a cohort of workers: the High-Risk and Population Strategy for Occupational Health Promotion (HIPOP-OHP) study	2008	1999 to 2004	6,498 men and women	(HIPOP-OHP) study	Incidence	FPG ≥ 126mg/dl (7.0mmol/l) or RPG≥ 200mg/dl (11.1 mmol/l) or medication for DM or self-reported diagnosis of	229	Japanese	zero-exposure past-active present active	 NA 	Ref. 1.15 (0.66 –2.03) 1.99 (1.29 –3.04)	 0.62 0.002	age, sex, BMI, physical activity, alcohol, family history of diabetes, hypertension, health promotion intervention, frequency of sweetened beverage intake, frequency of vegetable intake, and do not care about eating too much fat at all	 – ↑↑
3	Nakanishi, N., et al.	Cigarette smoking and risk for impaired fasting glucose and type 2 diabetes in middle-aged Japanese men	2000	1994-1999	1266 men	Male office workers at T corportion	Incidence	a fasting glucose level of 7.0 mmol/L or more or current receipt of hypoglycemic medication	54	Japanese	Never-Smokers Former Smokers Current Smokers 1–20 Cigarettes/d 21–30 Cigarettes/d >31 Cigarettes/d	 	Ref. 1.08 (0.34–3.42) 1.88 (0.71–5.00) 3.02 (1.15–7.94) 4.09 (1.62–10.29)	 <0.001 	age, body mass index, alcohol consumption, regular physical exercise, family history of diabetes, systolic and diastolic blood pressure, fasting plasma glucose level, total cholesterol level, high-density lipoprotein cholesterol level, triglyceride level, uric acid level, and	 – ↑ ↑↑ ↑↑↑
4	Sairench, T., et al.	Cigarette smoking and risk of type 2 diabetes mellitus among middle-aged and elderly Japanese men and women	2004	1993-2002	128,141 (39,528 men and 88,613 women)	Those who underwent health checkups conducted by Ibaraki Health Service Association	Incidence	a fasting plasma glucose level of ≥7.0 mmol/liter or a nonfasting plasma glucose level of ≥11.1 mmol/liter and/or when a person had begun to receive treatment for diabetes. Fasting was defined as not having had a meal for at least 8	3704	Japanese	men never smoker ex-smoker current smoker current smoker<20 cig/day current smoker>=20cig/day women never smoker ex-smoker current smoker current smoker<20 cig/day current smoker>=20cig/day	 748 1125 1831 109 1722 4067 23 196 90 106	 Ref. 1.15 (1.05–1.26) 1.31 (1.20–1.42) 1.51 (1.23–1.84) 1.30 (1.19–1.41) Ref. 1.08 (0.71–1.62) 1.38 (1.20–1.59) 1.41 (1.15–1.74) 1.36 (1.12–1.64)	 NA 	Age, parental history of diabetes, alcohol intake, BMI, systolic blood pressure, antihypertensive medication use, fasting status, plasma glucose level, serum total cholesterol level, high density lipoprotein cholesterol level, and log-transformed triglyceride level .	 ↑ ↑ ↑↑ ↑ – ↑ ↑ ↑
5	Teratani, T,.et al.	Dose-response relationship between tobacco or alcohol consumption and the development of diabetes mellitus in Japanese male workers	2012	2002-2010	8423 men	Male workers at a Japanese steel company	Incidence	Results of the annual health examination and individual medical histories. laboratory test for HbA1c or taking any antidiabetic	464	Japanese	Non smoker 1–10 cigarettes/day 11–20 cigarettes/day >21 Cigarettes/day Ex-smokers	189 19 135 121 	Ref. 0.84 (0.51–1.38) 1.26 (1.00–1.59) 1.54 (1.20–1.97) 1.30 (0.88–1.92)		Drinking and smoking habits, job schedule type, and habitual exercise were used as covariates in the analyses.	 – ↑ ↑↑ –
6	Kawakakmi, N., et al.	Effects of smoking on the incidence of non-insulin-dependent diabetes mellitus. Replication and extension in a Japanese cohort of male employees	1997	1984-1992	2312 men	Male employees of an electrical company	Incidence	NIDDM by 75-g OGTT	41 men	Japanese	Never Past Current 1-15 cigarettes/day 16-25 cigarettes/day 26+ cigarettes/day	NA NA NA NA NA	Ref. 2.25 (0.67–7.49) 1.13 (0.30–4.26) 3.27 (1.18–9.09) 3.21 (1.05–9.83)	 <0.05 	age, education, occupation, work shift, obesity, leisure-time physical activity, alcohol drinking, and family history of diabetes	 ↑↑ – ↑↑↑ ↑↑↑

No	Author	Title	Year	Study period	Number of subjects for analysis	Source of subjects	Event followed	Definitions	Number of incident cases or deaths	Participant's race	Category	Number among cases	Relative risk (95%CI)	p for trend	Confounding variables considered	Magnitude of association
7	Nagaya, T., et al.	Heavy smoking raises risk for type 2 diabetes mellitus in obese men; but, light smoking reduces the risk in lean men: a follow-up study in Japan	2008	1988-2001	16,829 men	Medical records from the Gifu Prefectural Centre for Health Check andHealth Promotion.	Incidence	FPG ≥ 7.0mmol/l (126mg/dl) or or self-reported medication for DM	869 men	Japanese	Q1, never Q1, ex-smoker Q1, light smoker Q1, heavy smoker Q2, never Q2, ex-smoker Q2, light smoker Q2, heavy smoker Q3, never Q3, ex-smoker Q3, light smoker Q3, heavy smoker Q4, never Q4, ex-smoker Q4, light smoker Q4, heavy smoker Total, never Total, ex-smoker Total, light smoker Total, heavy smoker	23 24 15 26 27 40 30 38 53 70 48 75 90 97 66 147 193 231 159 286	Ref. 1.13 0.45 (0.23–0.86) 0.77 (0.44–1.35) 1.02 1.42 1.13 1.23 1.96 (1.20–3.21) 2.21 2.04 2.56 3.54 3.22 3.39 4.79 (3.08–7.46) Ref. 1.07 0.95 1.24		Age, drinking, exercise, and education	
8	Uchimoto, S,.et al.	Impact of cigarette smoking on the incidence of Type 2 diabetes mellitus in middle-aged Japanese men: the Osaka Health Survey	1999	1981-1997	6250 men	Employees from a company in Osaka	Incidence	FPG ≥ 7.0mmol/l (126mg/dl) or a diagnosis by physicians	450	Japanese	Non-smokers Former Smokers Current Smokers 0 Cigarettes/d 1–20 Cigarettes/d 21–30 Cigarettes/d >30 Cigarettes/d 0 pack-years 0.1-20.0 pack-years 20.1-30.0 pack-years 30.1-40.0 pack-years >40.0 pack years	79 69 302 79 155 89 58 79 93 120 47 42	Ref. 1.10(0.79–1.53) 1.47(1.14–1.92) Ref. 1.40(1.05–1.86) 1.40(1.02–1.93) 1.73(1.20–2.48) Ref. 1.22(0.89–1.67) 1.57(1.16–2.11) 1.55(1.06–2.26) 1.73(1.15–2.60)	NA <0.01 <0.01	age, body mass index,physical activity, alcohol consumption, parental history of diabetes, fasting plasma glucose, total cholesterol, triglycerides, high-density lipoprotein cholesterol and haematocrit	– ↑ ↑ ↑ ↑↑ – ↑↑ ↑↑ ↑↑
9	Kaneto, C,.et al.	Long-term weight change in adulthood and incident diabetes mellitus: MY Health Up Study	2013	2004-2009	13,700 (2962 men and 10,738 women)	employees of a large insurance company	Incidence	a self-report of having diabetes or had a fasting plasma glucose level of 7.0 mmol/l (126 mg/dl)	408	Japanese	never smoker ex-smoker current smoker	194 68 146	Ref. 1.17 (0.86–1.58) 1.30 (1.03–1.65)	NA	sex, job type, family history of diabetes, hypertension, exercise, hours of sleep, smoking status, alcohol consumption, coffee consumption, regular mealtimes, job stress, and BMI during follow-up	 – ↑
10	Ide, R,.et al.	Periodontal disease and incident diabetes: a seven-year study	2011	2000-2007	5848 (3883 male and 1965 female)	civil officers of a prefecture in southwestern Japan.	Incidence	fasting plasma glucose > 125 mg/dL.	287 (231 male and 56 female)	Japanese	Periodontal status Never Current Past Missing teeth Never Current Past	 	 Ref. 1.13 (0.83–1.53) 1.44 (0.99–2.10) Ref. 1.16 (0.85–1.56) 1.45 (1.00–2.11)	NA	age, sex, smoking, high BMI, high triglyceride level, hypertension , low high-density lipoprotein cholesterol level , and high γ-glutamyl transpeptidase	 – – – ↑
11	Fukui, M,.et al.	Risk factors for development of diabetes mellitus, hypertension and dyslipidemia	2011	1998-2009	4304 (2530 men and 1774 women)	Community dwellings having health examinations	Incidence	FPG >=126 mg/dl or medication for DM	262		Nonsmoker Current or past	NA NA	Ref. 1.018 (0.863–1.200)	0.8350	age, sex, BMI, SBP, DBP, FPG, TC, TG, HDL-C, r-GTP, uric acid, creatinine, white blood cell count, hemoglobin, alcohol, exercise, family history of DM, family history of hypertension	 –

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12	Morimoto, A,.et al.	Risk of smoking and body mass index for incidence of diabetes mellitus in a rural Japanese population	2012	1990-2006	5872 (2070 men and 3802 women)	one central hospital in Nagano Prefecture	Incidence	FPG ≥ 7.0mmol/l or RPG≥ 11.1 mmol/l or HbA1c ≥ 6.5% medication for DM	246 men 349 women	Japanese	Normal weight, non-smoker Normal weight, past Normal weight, current smoker Obese, non-smoker Obese, past smoker Obese, current smoker Normal weight, non-smoker Normal weight, past Normal weight, current smoker Obese, non-smoker Obese, past smoker Obese, current smoker	20 59 77 15 38 37 184 0 2 158 2 3	Ref. 2.18 (1.31–3.64) 3.36 (2.02–5.60) 1.70 (0.87–3.34) 3.40 (1.93–5.96) 3.93 (2.22–6.96) Ref. NA 0.36 (0.10–1.67) 1.72 (1.38–2.15) 3.12 (0.87–12.31) 1.98 (0.68–6.96)	NA	age, blood glucose level, fasting status (yes or no), systolic blood pressure level, total cholesterol level, triglyceride level, family history of diabetes (yes or no), ethanol intake, exercise, change of smoking status, and BMI	↑↑↑ ↑↑↑ ↑ ↑↑↑ ↑↑↑ ↓↓ ↑↑ ↑↑ ↑
13	Hilawe, E,. Et al.	Smoking and diabetes: is the association mediated by adiponectin, leptin, or C-reactive protein?	2015	2002-2011	3338	Civil servants in Aichi Prefecture	Incidence	FPG >=126 mg/dl or self-reported DM	225	Japanese	Never smokers Ex-smokers Current smokers Light smokers Moderate smokers Heavy smokers All current smokers	75 65 17 36 32 85	Ref. 1.54 (1.07–2.22) 1.35 (0.79–2.32) 1.68 (1.10–2.58) 2.30 (1.47–3.60) 1.75 (1.25–2.46)	NA	age,sex, physical activity, consumptions of alcohol, sugar and energy ,sleep duration/day,family history of diabetes mellitus, mean arterial pressure, body mass index , total cholesterol to high-density lipoprotein cholesterol ratio, homeostatic model assessment 2–insulin resistance (HOMA2-IR), triglyceride, serum adiponectin, C-reactive protain, and leptin levels. triglyceride, lipoprotein cholesterol ratio, and log-transformed values of homeostatic model assessment 2–insulin	↑↑ – ↑↑ ↑↑↑ ↑↑
14	Akter, S., et al.	Smoking, Smoking Cessation, and the Risk of Type 2 Diabetes among Japanese Adults: Japan Epidemiology Collaboration on Occupational Health Study	2015	2008-2013	80,469 subjects (67,472 men and 12, 997 women aged 15 to 84 years)	J-ECOH study with 12 companies	Incidence	fasting plasma glucose 126 mg/dl; random plasma glucose 200 mg/dl; HbA1c 6.5% (48 mmol/mol), or under medical	2441	Japanese	Never smoker former smoker current smoker	799 567 1074	Ref. 1.16 (1.02–1.33) 1.31 (1.16–1.47)	NA	age, sex, worksite, BMI, waist circumference, hypertension, alcohol intake, shift work, sleeping time, leisure-time physical activity, and family history of diabetes	↑ ↑