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F. 研究発表

1．論文発表：なし
2．学会発表：なし

G. 知的財産権の出願・登録状況

1．特許取得：なし
2．実用新案登録：なし
3．その他：なし

Table 1. Environmental factors and allergic diseases

Factors	Design	Outcome			
		Wheeze	Asthma	Atopic dermatitis	Allergic rhinitis (Hay fever)
Basic characteristics					
Age	Cohort		N : 4	N : 5	
	Case-control		↑ : 6, 7 ↓ : 8		
	Cross-sectional	↑ : 9, 10, 11 ↓ : 12 N : 9 (ever), 13, 14, 15, 16, 17, 18	↑ : 9 (DD), 11, 12, 17, 19, 20 ↓ : 21, 22 (men), 23 N : 9 (ever), 10, 13, 14, 18, 22 (women),	↑ : 27 N : 16, 24, 26, 28	↑ : 16, 26, 29 ↓ : 21 N : 9, 24
Sex (male)	Cohort	↑ : 30, 31 N : 31, 32, 33	↑ : 30, 34, 35, 36, 37, 38 ↓ : 4 N : 32, 39, 40, 41, 42	N : 5, 43	
	Case-control	N : 44	↑ : 45, 46 ↓ : 7 N : 6, 8, 47 (grass pollen asthma), 48		
	Cross-sectional	↑ : 13, 14, 17 ↓ : 9, 10 (ever), 11, 15, 49 N : 9, 10 (current), 50	↑ : 12, 14, 51 (childhood onset), 52 ↓ : 9 (DD), 11, 19, 49 (current), 51 (adult onset) N : 9 (ever), 9, 10, 13, 24, 27, 41, 49 (ever), 51 (adolescent onset)	↓ : 16, 27, 28 N : 24, 26	↓ : 9 (ever), 49 N : 9, 9 (current, DD), 16, 24, 26
Socioeconomic factors					
High socioeconomic status	Cohort	N : 53	↑ : 54 (with allergic rhinitis) ↓ : 54 (without allergic rhinitis) N : 53	N : 43	↑ : 54
	Case-control		↓ : 45 N : 6		
	Cross-sectional	↑ : 55	N : 55	N : 27	
High social class	Cohort			↑ : 5	
	Case-control		↓ : 47		
	Cross-sectional		↓ : 19 N : 21		↑ : 21
Poverty	Cohort	N : 33	N : 36		
High income	Cohort	N : 56	↓ : 35 N : 33, 57		
	Case-control			N : 58	
	Cross-sectional	N : 15	N : 23, 24, 26	N : 24, 26	↑ : 24, 26 N : 29
High education	Cohort		↓ : 59 N : 57		
	Case-control		↓ : 48		
	Cross-sectional	↓ : 18 N : 15, 60	↓ : 19, 20, 22 (men) N : 18, 19, 22 (women), 23, 60		↑ : 60 N : 9
Parental high education	Cohort	N : 33	N : 33		
	Case-control		N : 61	↑ : 58 N : 61	
	Cross-sectional	↑ : 9, 17, 58	↑ : 9 (ever), 62 ↓ : 17 N : 9 (DD), 17	↑ : 28	
Maternal higher education	Cohort	N : 30	↓ : 34	N : 5, 63	

			N : 30, 36		
Paternal higher education	Cohort			N : 5	
Inability to see a doctor due to cost	Cross-sectional		↑ : 23		
Beneficiary status (active duty vs retired or family member)	Case-control		↑ : 7		
Health care coverage	Cross-sectional		↑ : 23		
Medical insurance	Cross-sectional		↑ : 22 (men)		
Marital status	Cohort		N : 38		
Residence					
Rural	Case-control		↓ : 47 (grass pollen asthma)		
	Cross-sectional	↓ : 17 N : 15	↑ : 25 (girls) ↓ : 17, 64 N : 20, 25 (boys), 65	↓ : 64	N : 64
Farm	Cohort			N : 66	
	Cross-sectional	↑ : 13 N : 67	↓ : 68 N : 65, 69	N : 68	↓ : 68, 69
Urban	Case-control		↑ : 48		
	Cross-sectional	↑ : 70	↑ : 71 N : 70	N : 27	↑ : 71
Urbanization	Cohort			N : 5	
Dump area	Cohort		↑ : 72		
Siblings					
Number of siblings	Cohort	↑ : 31	↓ : 57 N : 38, 73, 74	N : 66	↓ : 73, 75, 76
	Case-control	N : 77	N : 77 (wheeze+asthma)	N : 58	
	Cross-sectional	N : 50	↓ : 52, 78 (asthma with allergic rhinitis) N : 24, 26	N : 24, 26	N : 24, 26, 29
Older siblings	Cohort	N : 30, 79, 80 (asthma or wheezing), 81	N : 30, 82	N : 43, 63, 79, 80, 82, 83	N : 82
	Case-control	N : 77	↓ : 84 N : 77 (wheeze+asthma)		
	Cross-sectional	N : 16	↓ : 51 (adult onset), 78 (asthma with allergic rhinitis) N : 51 (childhood and adolescence	N : 16	↓ : 16
Younger siblings	Case-control	N : 77	↓ : 77 (wheeze+asthma)		
	Cross-sectional		N : 78 (asthma with allergic rhinitis)		
Brothers	Cross-sectional		↓ : 78 (asthma with allergic rhinitis)		
Sisters	Cross-sectional		↓ : 78 (asthma with allergic rhinitis)		
Older brothers	Cross-sectional		↓ : 78 (asthma with allergic rhinitis)		
Older sisiters	Cross-sectional		↓ : 78 (asthma with allergic rhinitis)		
Younger brothers	Cross-sectional		N : 78 (asthma with allergic rhinitis)		
Younger sisters	Cross-sectional		N : 78 (asthma with allergic rhinitis)		
Family size	Cross-sectional	N : 15			
Crowding	Cohort	N : 31	↓ : 57	↓ : 83 N : 5	N : 76
	Case-control		↓ : 85	N : 58	

	Cross-sectional	N : 86	↓ : 20 N : 86		
Anthropometric measurement					
High birth weight	Cohort	↓ : 30 N : 80 (asthma or wheezing), 81, 87	↑ : 35, 88 N : 38, 87	N : 80	↑ : 89
Low birth weight	Cohort	↑ : 56 (repeated wheze), 90 N : 32, 56 (any wheeze), 80 (asthma or wheezing), 87	↑ : 32 (ever), 34, 36 N : 30, 32 (DD), 35, 38, 57, 73, 74, 87, 89	N : 80, 89, 91	N : 73, 91
	Cross-sectional	N : 92	N : 93	N : 93	N : 93
Birth length	Cohort	N : 87	N : 57, 87		
Ponderal index (g/cm^3) at birth	Cohort		↑ : 88 N : 73, 94		N : 73
Head circumference at birth	Cohort	N : 87	N : 87, 89	N : 89, 91	N : 89, 91
Head circumference/birth weight ratio	Cohort	N : 87	N : 87, 89	N : 89	↓ : 89
Head circumference/weight at 1 month ratio	Cohort		N : 89	N : 896	N : 89
Height	Cross-sectional				N : 99
Overweight, obesity	Cohort	N : 96	↑ : 4, 40, 59, 97, 98, 99, 100, 94, 101 N : 57, 89	N : 43, 89	N : 89, 98
	Case-control		↑ : 7, 8, 102 N : 84, 103		
	Cross-sectional	↑ : 10, 14 (with sleep-disordered breathing), 15, 17, 18, 104 (current), 105, 106, 107 N : 14 (without sleep-disordered breathing), 104 (ever), 109	↑ : 14, 17, 19, 20, 22, 23 (women), 104, 105 (women), 106, 107, 108 (women) N : 10, 18, 23 (men), 52, 105 (men), 108 (men), 109, 110	N : 110	↑ : 106, 110 N : 95, 105
Body fat	Cross-sectional		N : 110	N : 110	↑ : 110
Underweight	Cohort		↑ : 98 N : 59, 101		↑ : 98
	Case-control		N : 8, 102		
	Cross-sectional	↑ : 17 ↓ : 109 N : 104, 105	↑ : 20, 22 (men) N : 17, 22 (women), 23, 104, 105		
Waist circumference	Cross-sectional	N : 109	↑ : 108 (women) N : 108 (men), 109		
Maternal factors					
Maternal age	Cohort	↓ : 31 N :31, 33	↑ : 34 N : 33, 36, 38, 73		N : 73
	Case-control		N : 84	N : 58	
	Cross-sectional	N : 16	N : 93	N : 16, 93	N : 16, 93
Maternal age at menarche	Cohort		N : 111	N : 111	N : 111
Maternal BMI before pregnancy	Cohort		N : 38		
Maternal weight gain during pregnancy	Cohort		N : 38, 57		
Maternal complications during pregnancy	Cohort	N : 80 (asthma or wheezing)		N : 80	
Maternal hospital admission during pregnancy	Cohort	N : 80 (asthma or wheezing)		N : 80	
Maternal complication during	Cohort	N : 80 (asthma or wheezing)		N : 80	

delivery					
Maternal depression	Cross-sectional		↑ : 52		
Multiple birth	Cohort		N : 57		
Premature/preterm birth	Cohort	↑ : 31 N : 31, 33			
	Cross-sectional	↑ : 14, 50	↑ : 12, 14		
Gestational age	Cohort	N : 87	↑ : 39 ↓ : 89 N : 38, 40, 57, 73, 74, 87	N : 63, 89	↓ : 73, 89
	Case-control		↑ : 84		
Season of birth	Cohort		N : 38		
Intrauterine growth	Cohort		N : 57		
Apgar score	Cohort		↑ : 38 (at 1st min) N : 38 (at 5th and 10th min)		
Mode of delivery					
Breech delivery	Cohort		N : 112	N : 112	N : 112
Caesarean section	Cohort	↑ : 113 N : 34, 114	↑ : 38, 57, 73 (ever), 112, 115, 116 N : 34, 73 (current), 114	N : 112, 113, 115, 116	↑ : 115 N : 73, 76, 112, 113, 116
Forceps/vacuum extraction	Cohort		N : 112	↑ : 112	N : 112
Forceps, manual auxiliary, and extraction breech	Cohort		↑ : 38		
Vacuum extraction	Cohort		N : 38		
Special procedures at delivery					
Fetal-pelvic disproportion	Cohort		N : 38		
Fetal asphyxia	Cohort		N : 38		
Prolongation of labor	Cohort		N : 38		
Exhaustion of mother	Cohort		N : 38		
Duration of second-stage labour	Cohort				N : 76
Induced labor	Cohort	N : 80 (asthma or wheezing)		N : 80	
Smoking					
Active smoking	Cohort	↑ : 117 N : 81	↑ : 117, 118, 119 N : 4		
	Case-control		↑ : 8 N : 6		
	Cross-sectional	↑ : 10, 11, 13, 15, 18, 120	↑ : 11, 18, 19, 20, 21, 23 (women), 120, 121 ↓ : 22 (men) N : 10, 13, 22 (women), 23 (men), 120, 122, 123	N : 27, 121	↓ : 123 N : 21, 121, 122
Passive smoking	Cohort	↑ : 31 N : 30, 31, 33, 117	↑ : 36, 124 (at 1, 2 y) N : 117, 40, 30, 41, 33, 124, 124 (at 4 y)		↑ : 75 N : 125 (hay fever and/or asthma)

	Case-control		↑ : 45, 61, 126 N : 46, 127	N : 58, 61, 128	
	Cross-sectional	↑ : 9, 120, 129 (girls), 130 N : 16, 17, 55, 86, 129 (boy), 130	↑ : 9, 25 (boys), 120, 130, 131, 132 N : 17, 20, 24, 25 (girls), 25, 41, 51, 55, 65, 86, 121, 123, 129, 130, 131	N : 16, 24, 121, 123	↑ : 9 (current), 121, 133 (hay fever/asthma) N : 9 (ever, DD),16, 24, 121, 123, 134, 130
Maternal smoking during pregnancy	Cohort	↑ : 31 N : 31, 56, 80 (asthma or wheezing), 81	↑ : 135 (ever) N : 38	N : 43, 80	N : 125 (hay fever and/or asthma)
	Case-control		↑ : 45, 127 N : 84		
	Cross-sectional	N : 86	↑ : 26, 136 N : 86, 93	N : 26, 93	N : 26, 93
Serum cotinine level	Cohort		N : 59		
Occupation					
Farmer	Cohort		↓ : 74, 38 (paternal)		
	Cross-sectional	N : 9	N : 9		N : 9
Farmer (vs civil servant)	Case-control			N : 58	
Works at home	Cross-sectional		N : 20		
Works outside home	Cross-sectional		↓ : 20		
Cleaning work	Cross-sectional		↑ : 137		↑ : 137
Duration of daily work	Cohort			↑ : 5 (father) N : 5 (mother)	
Shift work	Cohort			N : 5 (parents)	
Occupational agents					
Asbestos	Cohort	N : 138	N : 138		
Replace asbestos brakes	Cross-sectional	↑ : 139			
Quartz	Cohort	N : 138	N : 138		
Dust/fumes	Cohort	↑ : 138	↑ : 138		
	Cross-sectional	↑ : 10	N : 10		
Grind metal	Cross-sectional	↑ : 139			
Drive combines	Cross-sectional	↑ : 139			
Drive trucks	Cross-sectional	↑ : 139			
Diesel tractors	Cross-sectional	↑ : 139			
Gasoline to clean	Cross-sectional	↑ : 139			
Gas tractors	Cross-sectional	↑ : 139			
Repair engines	Cross-sectional	↑ : 139			
Weld	Cross-sectional	↑ : 139			
Paint	Cross-sectional	↑ : 139			
Hand pick (crop activities)	Cross-sectional	↑ : 139			
Plant (crop activities)	Cross-sectional	N : 139			
Insecticide use	Case-control			↑ : 58	
	Cross-sectional	↑ : 11	↑ : 11		
Pesticide	Cross-sectional	↑ : 140			
Repair pesticide equipment	Cross-sectional	↑ : 139			
Disinfectants	Cross-sectional		N : 122		N : 122
Fertilizer	Cross-sectional	↑ : 11	N : 11		
Natural fertilizer	Cross-sectional	↑ : 139			
Chemical fertilizer	Cross-sectional	N : 139			

Livestock	Cross-sectional		↑ : 13		
Cattle kept inside house	Case-control		↓ : 126		
Rats	Cross-sectional		N : 122		N : 122
Rat allergen (Rat n 1)	Cross-sectional		N : 122		N : 122
IgE to rat urinary proteins	Cross-sectional		N : 122		↑ : 122
Air pollution					
NO	Cross-sectional		N : 141		
NO_2	Cohort	N : 141	↑ : 41		
	Case-control	N : 143	↑ : 144		
	Cross-sectional	↓ : 55 (ever) N : 55 (current), 145	N : 41, 55, 141, 145	N : 145	N : 145
NOx	Cross-sectional		N : 141		
SO_2	Cross-sectional	↑ : 145 N : 55	↑ : 145 N : 55	N : 145	N : 145
Particulate matter <10µm	Cohort	↑ : 147	N : 41		
	Cross-sectional	N : 145	N : 41, 141, 145	N : 145	N : 145
Particulate matter 2.5 µm	Cohort	N : 142			
	Cross-sectional		N : 141		
Particulate matter 2.5 µm absorbance	Cohort	N : 142			
Total suspended particle	Case-control		↑ : 144		
Black carbon	Cross-sectional		N : 141		
O_3	Cross-sectional	N : 55, 145	N : 55, 145	N : 145	N : 145
Air quality	Cohort			N : 5	
Home environment					
Temperature	Case-control		↑ : 6, 147		
Carpeting	Case-control		↓ : 45	N : 148	
	Cross-sectional	↓ : 129			
Vacuuming	Case-control			↓ : 148 (house) N : 148 (bedroom)	
Dust	Cohort	N : 149	N : 149		
	Cross-sectional	↑ : 13	N : 13		
House dust allergens					
Der f 1	Cohort		N : 150		
	Case-control	N : 151	N : 151		
	Cross-sectional	N : 152		N : 152	N : 152
	Ecological	N : 153	N : 153		
Der p 1	Cohort	N : 154 (atopic wheeze)	N : 150	N : 83	
	Case-control	N : 151	↑ : 6		
	Cross-sectional	N : 152		N : 152	N : 152
	Ecological	↑ : 153 (13-14 y) N : 153 (6-7 y)	N : 153		
Der f 1+Der p 1	Cohort		N : 155		
	Case-control	N : 151	N : 151		
Fel d 1	Cohort	↑ : 157 (with maternal asthma) ↓ : 157 (without maternal asthma) N : 154 (atopic wheeze), 157, 158	N : 157	N : 83	
	Case-control	N : 151	N : 151		
Can f 1	Cohort	N : 157, 158	N : 157		

Dog allergen	Cohort	N : 90, 156			
Bla g 1	Cohort	N : 158			
	Cross-sectional	↑ : 56 (repeated wheeze) N : 56 (any wheeze)			
Cockroach allergen	Cohort	↑ : 33, 90	↑ : 33		
Mouse allergen	Cohort	↑ : 90			
House dust endotoxin	Cohort	↑ : 56 (repeated wheeze), 90, 159 (at 13-24 mo: concentration), 160 N : 56 (any wheeze), 149, 159 (at 0-12 mo, 25-36 mo: concentration), 159 (at 0-36 mo: load)	↓ : 149	↓ : 159 (at 12 mo: concentration) N : 159 (at 24 mo, 36 mo: concentration), 159 (at 0-36 mo: load), 160	N : 159
	Case-control	N : 151	N : 151		
	Cross-sectional	↑ : 161 N : 67	N : 122		N : 122
Glucann	Cohort	N : 96, 149	N : 149		
	Cross-sectional	N : 67			
EPS	Cross-sectional	N : 67			
EPS from Penicillium and Aspergillus	Cohort	↓ : 149 (persistent) N : 149 (current and transient)	↓ : 149		
Pet ownership	Cohort	↑ : 156 (cat: with maternal asthma) ↓ : 156 (cat: without maternal asthma), 162 (cat: <18 y ownership), 163 (dog: without parental ashtma) N : 32 (cat, dog), 56 (dog), 156 (dog), 161 (cat: <18 and 18+ y ownership, 18+ y ownership), 163 (cat), 163 (dog: with parental asthma), 164(dog, cat)	↓ : 162 (cat: <18 y ownership, <18 and 18+ y ownership) N : 32 (cat, dog), 162 (cat: 18+ y ownership), 165 (cat, dog)	↓ : 63 (furred pets), 66, 166 (pets), 166 (dog) N : 43 (cat, dog), 166 (cat, hamster, rabbit or guinea pig)	
	Case-control		↑ : 45, 167 (past ownership) N : 167 (cat, dog, bird, rodent) ↓ : 167 (current ownership)	N : 148	
	Cross-sectional	↑ : 168 (at time of birth ownership) ↓ : 169 (cat) N : 16, 17 (dog), 129 (cat, dog, bird, rodent), 169 (cat + dog), 170 (furred pets), 171 (cat), 172 (cat, dog)	↑ : 132, 168 (ownership at time of birth) ↓ : 51 (cat and/or dog: childhood onset), 169 (cat + dog), 172 (dog: current ownership) N : 17 (dog), 51 (cat and/or dog: adolescent and adult onset), 65, 129 (cat, dog, bird, rodent), 169 (cat), 170 (furred pets), 171 (cat), 172 (cat: current ownership), 172 (cat, dog: ownership in first year of life)	↓ : 172 (dog: ownership at first year of life) N : 16, 58, 168 (ownership at time of birth), 172 (cat, dog: current ownership), 172 (cat: ownership at first year of life)	↑ : 168 (ownership at time of birth), 171 (cat: current) ↓ : 169 (cat + dog), 172 (dog) N : 16, 169 (cat), 171 (cat: DD), 172
Fuel					
Coal as fuel	Cross-sectional	N : 11	N : 11		
Cornstalks as fuel	Cross-sectional	N : 11	N : 11		
Wood as fuel	Case-control			↓ : 58	

	Cross-sectional	N : 11	N : 11		
Electricity as fuel	Case-control			↑ : 58	
Cooking					
Gas cooking	Case-control		N : 6 (heating and cooking), 45	N : 148	
	Cross-sectional	N : 86, 129	↑ : 86 N : 129		
Wood, animal dung, or crop residues as fuel	Cross-sectional		↑ : 20		
Separate kitchen	Cross-sectional		↓ : 20		
Heating					
Gas as fuel	Case-control			N : 148	
	Cross-sectional	N : 129	N : 129		
Coal as fuel	Cross-sectional	N : 129	N : 129		
Oil as fuel	Cross-sectional	N : 129	N : 129		
Wood as fuel	Cross-sectional	N : 129	N : 129		
Wood stove	Cohort	N : 158			
	Cross-sectional	N : 173	N : 173	N : 173	N : 173
Gas stove	Cohort	N : 158			
	Cross-sectional	N : 174			
Unvented heater	Cohort		N : 41		
	Cross-sectional		N : 41		
Stove (kerosene, coal, wood, dung, straw)	Cross-sectional	N : 9	↓ : 9 (DD) N : 9 (ever)		↓ : 9 (ever) N : 9 (current, DD)
Biosmoke (open fire or burning smoke without a flue vs. gas or kerosene stove)	Case-control		↑ : 126		
Fume emitting heaters	Cross-sectional	↑ : 175 (first year of life) N : 175 (current)	N : 175		
Radiator in bedroom	Case-control			N : 148	
Hearth or open fire place	Case-control		N : 45		
Central heating or electricity as	Case-control		N : 45		
Space heating					
Gas as fuel	Cross-sectional	N : 129	N : 129		
Coal as fuel	Cross-sectional	↑ : 129 (boys) N : 129 (girls)	↑ : 129 (girls) N : 129 (boys)		
Oil as fuel	Cross-sectional	N : 129	N : 129		
Wood as fuel	Cross-sectional	N : 129	N : 129		
Air conditioning	Case-control		↓ : 6		
	Cross-sectional		N : 25		
Water heating					
unvented gasgeyser	Case-control		↑ : 45		
Dampness					
Dampness/humidity	Cohort	↑ : 176 N : 32	N : 32, 176	N : 43	
	Case-control	↑ : 177		↑ : 148 (current)	

				N : 128, 148 (ever)	
	Cross-sectional	N : 178	↑ : 178 N : 6 (living room)	N : 178	↑ : 178 (DD) N : 178 (current)
Mold or mold odour	Cohort	↑ : 158 (with maternal asthma) N : 158 (without maternal asthma)		N : 43	N : 75
	Case-control	↑ : 177	↑ : 45	N : 128	
	Cross-sectional	↑ : 86 N : 129	↑ : 86 N : 129		
Condensation	Cross-sectional	N : 178	↑ : 178	N : 178	↑ : 178
Water leakage	Cross-sectional	N : 178	N : 178	↑ : 178	↑ : 178 (current) N : 178 (DD)
Water damage	Cross-sectional	↑ : 86	N : 86		
Flooding	Case-control			N : 128	
Floor moisture	Cross-sectional	↑ : 178	↑ : 178	↑ : 178	↑ : 178 (curent) N : 178 (DD)
Chemical agents					
Formaldehyde	Case-control		↑ : 147		
Volatile organic compounds	Case-control		↑ : 6		
Butyl benzyl phthalate in house dust	Case-control		N : 179	↑ : 179	↑ : 179
Di (2-ethylhextl) phthalate in house dust	Case-control		↑ : 179	N : 179	N : 179
Chemical household products (disinfectant, bleach etc)	Cohort	↑ : 180 (persistent) N : 180 (transient, late onset)			
Repainting child's room	Case-control	↑ : 177			
Biological exposure at home					
Pig ownership	Cross-sectional	N : 9	N : 9		N : 9
Poultry kept inside house	Case-control		N : 126		
Mouse	Cohort	↑ : 90			
Bedding items					
Cocoon use	Cohort	↑ : 181	↑ : 181		
Bottom bunk bed	Cross-sectional	↑ : 50			
Foam mattress	Cross-sectional	N : 50			
Old mattress	Case-control			N : 148	
Electric blanket	Cross-sectional	↑ : 50			
Feather quilt	Cohort		↓ : 182		N : 182
Sheepskin underbedding	Cross-sectional	↓ : 50			
Synthetic pillow	Cohort	↑ : 183			
	Case-control			↑ : 148	
	Cross-sectional	↑ : 50, 183, 184	↑ : 184		
Synthetic quilt (duvet)	Case-control			N : 148	
	Cross-sectional	↑ : 50, 183			
Synthetic blanket	Cross-sectional	↑ : 184	↑ : 184		
Number of synthetic bedding items	Cohort	↑ : 185	↑ : 185		
Housing characteristics					
Building age	Cross-sectional	↑ : 86	N : 86		