

Miscelánea

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Iniciativa científica de:



Grupo Español de Cáncer de Pulmón
Spanish Lung Cancer Group

Air pollution and lung cancer

Study Design

- Exposure history evaluation of all newly diagnosed lung cancer in Greater Vancouver Area (*participation rates 84%*)
- Detailed residential history questionnaire
- Address coordinates for each location input into geographic information system

Demographics	Never Smokers	Ever Smokers
Number of Patients (N=681)	242 (35.5%)	439 (64.5%) Former Smokers: 81% Current Smokers: 19%
Sex	Female: 68% Male: (32%)	Female: 47% Male: 53%
Age (mean±SD)	67 ± 10 yrs	69 ± 8 yrs
Ethnicity	Caucasian: 26% Asian: 64% Other: 10%	Caucasian: 75% Asian: 18% Other: 7%
Place of Birth	Canada: 20% Foreign: 80%	Canada: 61% Foreign: 39%
Mean Duration living in Foreign Country	38 ± 14 yrs	30 ± 16 yrs

In female cancer patients, strong association between air pollution and being never-smoker

Never smoker	Odds Ratio	Std. Err.	Z	P value	95% Conf. Interval	
Age	.9873335	.0163395	-0.77	0.441	.9558225	1.019883
Asian	19.17708	5.85282	9.68	0.000	10.54379	34.87933
LNairPoll	4.423096	2.404844	2.73	0.006	1.523796	12.83884
_cons	.0149138	.0159691	-3.93	0.000	.0018288	.1216244

In male cancer patients, no association between air pollution and being never-smoker

Never smoker	Odds Ratio	Std. Err.	Z	P value	95% Conf. Interval	
Age	.9819583	.0157649	-1.13	0.257	.9515407	1.013348
Asian	3.882463	1.118697	4.71	0.000	2.207198	6.829257
LNairPoll	.968094	.3984302	-0.08	0.937	.4321115	2.168899
_cons	.2048959	.1672689	-1.94	0.052	.0413663	1.014893

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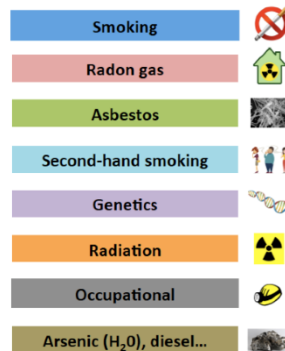
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Second-Hand Smoke (SHS) Exposure (moderate/high)	Never Smokers (N=174)	Ever Smokers (N=231)
SHS Exposure at home ≤18 years	41.4%	59.3%
SHS Exposure at home as an adult	19.5%	48.1%
SHS Exposure at work as an adult	25.3%	44.6%

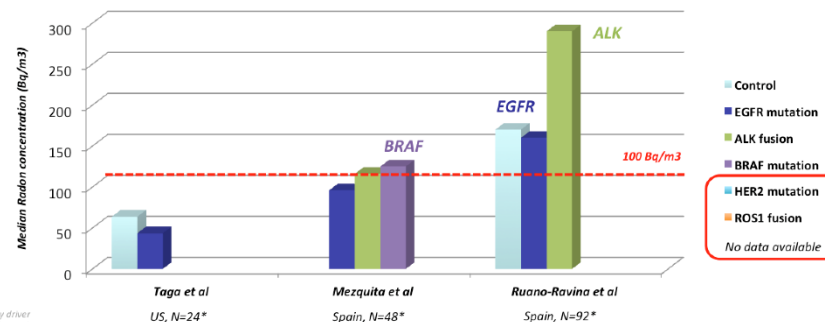
Molecular alterations and indoor Radon (France)

RADON GAS: lung cancer risk factor

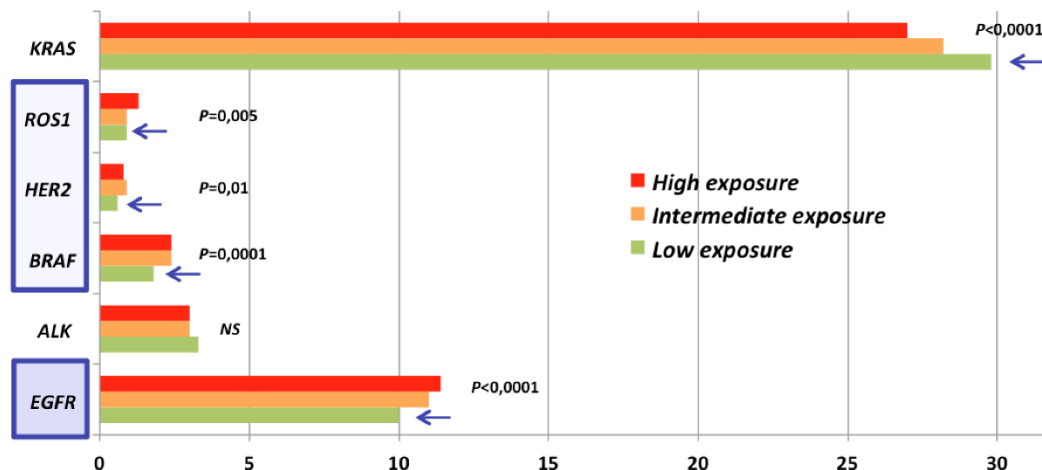
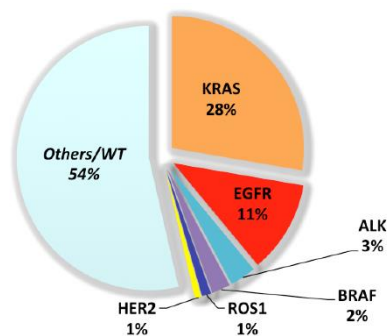
- GROUP 1 CARCINOGEN by IARC, WHO
- Radon gas \approx 10-15% cases
 - 1st risk factor in non-smokers
 - 2nd cause in smokers: synergism +++
- Lineal relation: time-exposure-risk
- Occupational: miners
- General population (indoor): $\hat{=}$ 11-16% risk, each 100 Bq/m³



Indoor radon & molecular driver alt in NSCLC



- N= 116.424 NSCLC

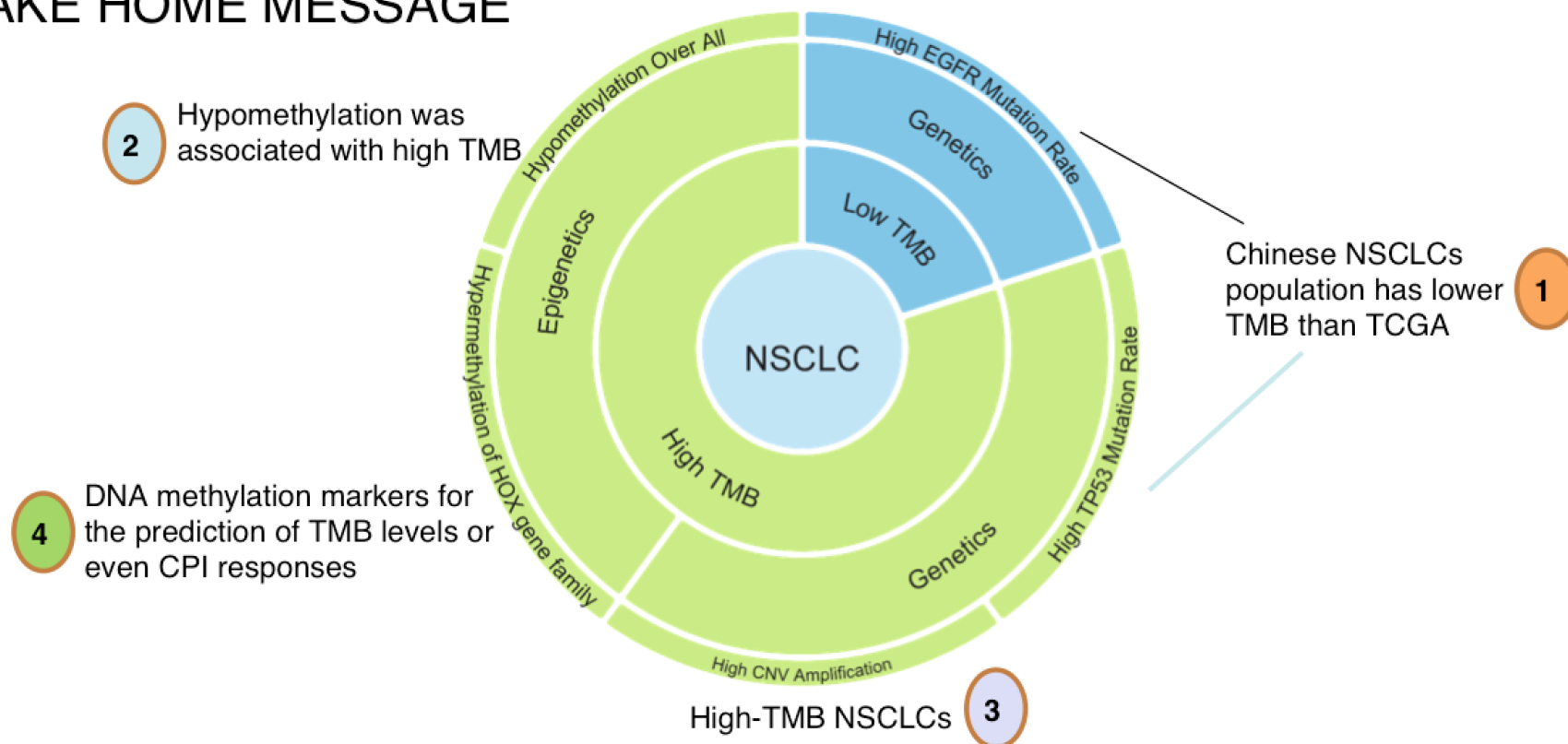


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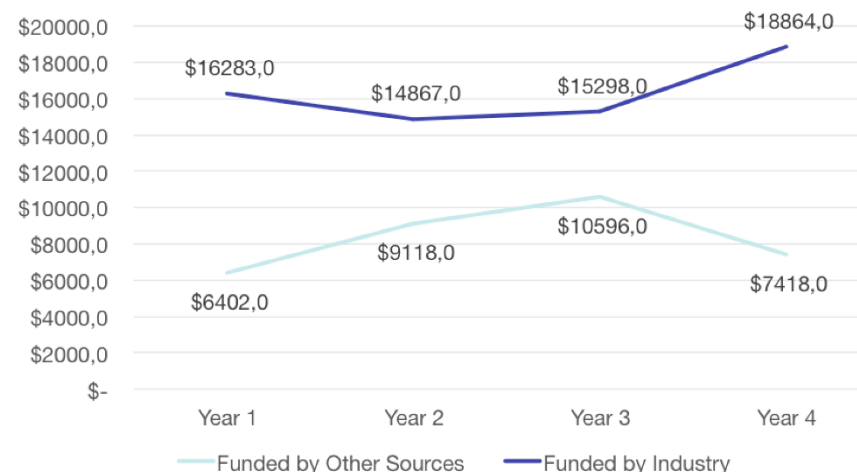
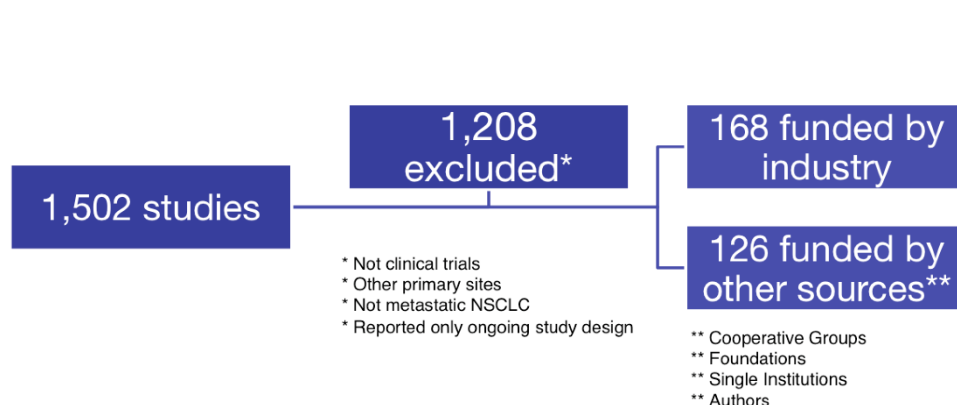
TAKE HOME MESSAGE



Postoperative rehabilitation (Taiwan and Danish Trials)

- **Duration of chest drainage in the intervention group was significantly shorter.**
- **Decrease in the six-minute walk distance from pre to post-test in the intervention group was significantly lower.**
- **The increase in the level of fatigue from pre to post-test in the intervention group was significantly lower than it in the control group.**
- **To reduce fatigue patients should be recommended to initiate early exercise programs.**

Funding costs of research: industry vs academy



Parameter		Industry Sponsored		P
		Yes 168 (100%)	No 126 (100%)	
Number of Patients		37,862	13,311	< 0.001
Mean N of Patients (SE)		225.37	105.64	
Mean Monthly Cost		16,111.18	8,789.73	< 0.001
Line	First	105 (62.5%)	78 (61.9%)	0.917
	Second and further	63 (37.5%)	48 (38.1%)	
Biomarker	Yes	36 (21.6%)	22 (17.5%)	0.384
	No	131 (78.4%)	104 (82.5%)	
Innovative Treatment	Yes	118 (70.2%)	44 (34.9%)	< 0.001
	No	50 (29.8%)	82 (65.1%)	
Experimental Superiority	Yes	35 (40.7%)	16 (43.2%)	0.793
	No	51 (59.3%)	21 (56.8%)	
Open Access Article	Yes	100 (59.5%)	60 (47.6%)	0.043
	No	68 (40.5%)	66 (52.4%)	

- Studies funded by pharmaceutical industry: with stronger evidence, tested more innovative and more expensive therapies were more accessible to the readers;
- Only 20% tailored by biomarker

Role of comprehensive genomic profile in clinical practice

Diagnosis	Number	Genomic	Tx with benefit	Tx lack response
Sarcomatoid	1	5	1	0
Unknown Primary	4	11	8	0
Cholangio	1	1	5	0
SCLC	1	4	0	0
Uterine	1	3	3	0
Breast	1	7	4	0
Ovarian	1	2	3	0
Melanoma	1	10	3	0
Renal	1	5	0	0
Rectal	1	5	0	2
Apendix	1	3	4	0
NSCLC	32	207	172	9

Referred to Clinical Trial:
 6/46 (13%)
 Therapy Changed:
 12/46 (26%)

Lung Subset:
Referred to Clinical
Trial: 2/32 (6%)
Therapy Changed:
11/32 (34%)

- Under the status quo scenario, age-adjusted lung cancer mortality is projected to drop 79% from 2015 to 2065.
- Concomitantly, the annual number of lung cancer deaths is projected to decrease from 135,000 to 50,000 (63% reduction).
- Despite these decreases, 4.4 millions deaths from lung cancer are projected to occur in the US from 2015-2065.