

# Real-world outcomes of patients with malignant solid tumors treated with immune checkpoint inhibitors (ICI) in relation to smoking status. The SAKK 80/19 SMOKER study



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Abstract: 6619

## Background

ICIs are the standard of care for the treatment of different advanced solid organ tumors. Especially in advanced non-small cell lung cancer, never-smoking was shown to be an unfavorable factor for ICI, suggesting that the smoking status could be a predictive marker for survival benefits under ICI treatment [1].

## Methods

Patients (pts) within the Swiss Alpine Tumor Immunology Registry (AlpineTIR) treated with an ICI were differentiated by their smoking status (ex-smokers/smokers versus never-smokers).

Overall survival (OS) and progression-free survival (PFS) from the start of the first ICI treatment were analyzed by smoking status. Further, subgroup analyses for OS and PFS were done for the most common disease entities.

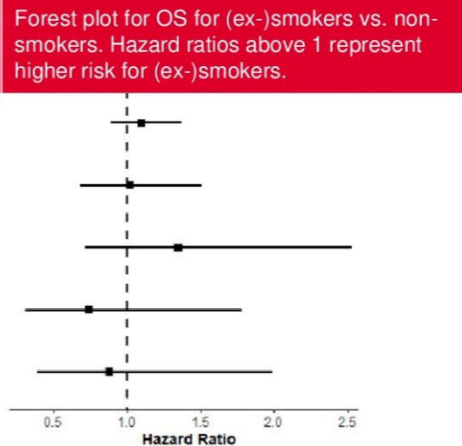
## Results

The median follow-up time from the administration of the first ICI to the statistical analysis was 2.7 years (95% CI: 2.3 to 3.2 years).

The median PFS was 6.3 months (95% CI: 4.4 to 8.3 months) for never-smokers and 6.2 months (95% CI: 5.2 to 7.0 months) for (ex-)smokers (HR: 1.05, 95% CI: 0.87 - 1.27, p = 0.619). There was no difference in PFS in the cancer type subgroups.

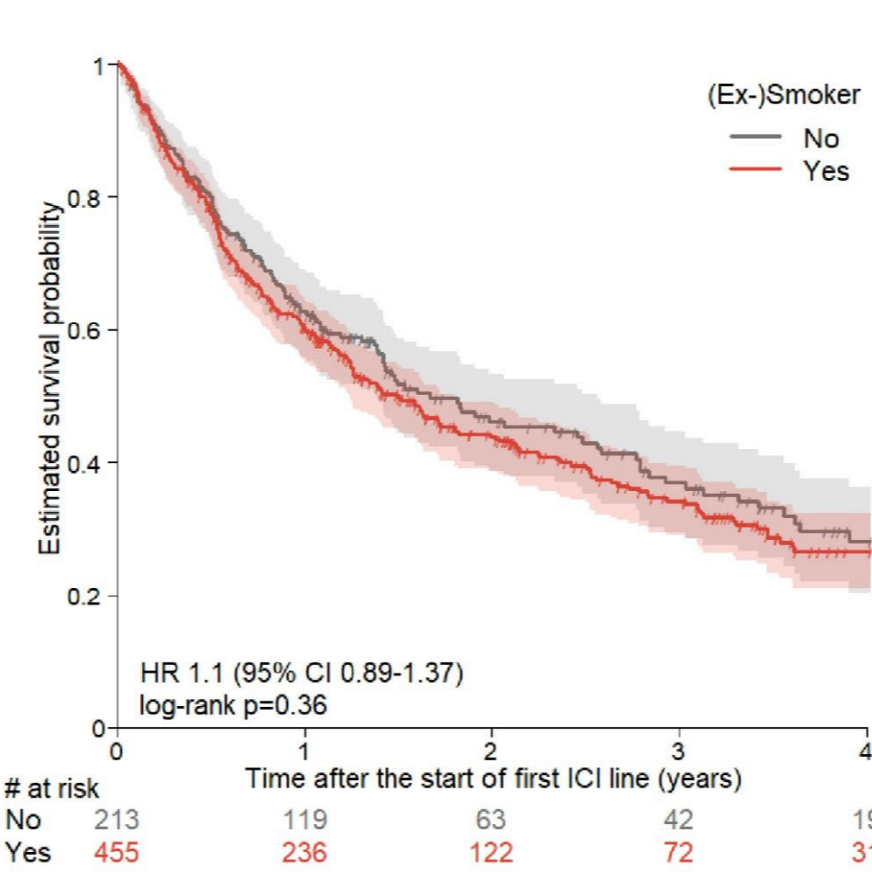
No survival difference between smokers and non-smokers with solid organ tumors treated with ICIs could be detected.  
Based on these data, the smoking status should not guide ICI treatment decisions.

| Cohort         | n   | Never-smoker<br>Median OS (95%CI) | (Ex-)Smoker<br>Median OS (95%CI) | HR (95%CI)         | p-value |
|----------------|-----|-----------------------------------|----------------------------------|--------------------|---------|
| All pts        | 213 | 1.7 (1.4 – 2.6)                   | 1.5 (1.2 – 1.8)                  | 1.10 (0.89 – 1.37) | 0.36    |
| Lung cancer    | 43  | 1.4 (0.8 – 2.8)                   | 1.4 (1.2 – 1.7)                  | 1.02 (0.68 – 1.51) | 0.93    |
| Melanoma       | 54  | 3.4 (1.8 – NR)                    | 1.7 (0.8 – NR)                   | 1.35 (0.72 – 2.53) | 0.35    |
| RCC            | 28  | 1.5 (1.0 – 3.6)                   | 3.5 (0.6 – NR)                   | 0.74 (0.31 – 1.78) | 0.5     |
| Bladder cancer | 17  | 1.8 (0.6 – NR)                    | 1.4 (0.5 – NR)                   | 0.88 (0.39 – 1.99) | 0.75    |

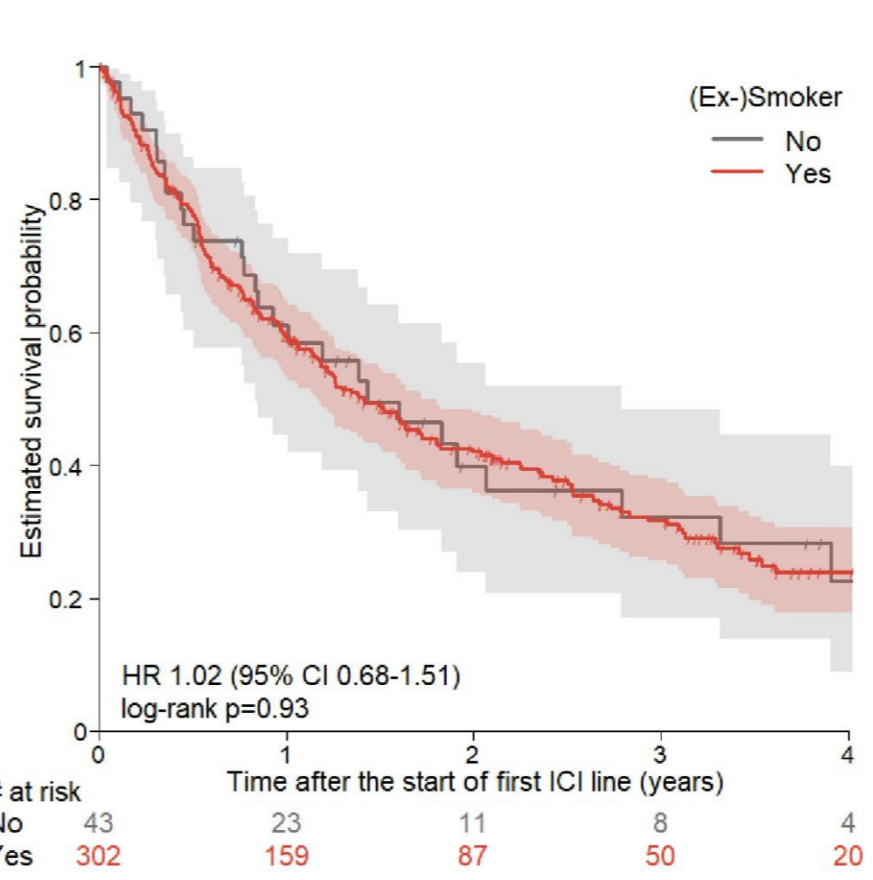


| Baseline characteristics    | N = 702      |
|-----------------------------|--------------|
| Age (years), median (range) | 66 (22 – 90) |
| <b>Sex</b>                  |              |
| Female                      | 291 41.5%    |
| Male                        | 411 58.5%    |
| <b>Smoking Status</b>       |              |
| Ex-smoker                   | 265 38%      |
| Non-smoker                  | 213 30%      |
| Smoker                      | 190 27%      |
| Unknown smoking status      | 34 5%        |
| <b>Cancer types</b>         |              |
| Bronchus and lung cancer    | 353 50.3%    |
| Melanoma                    | 90 12.8%     |
| Renal cell cancer (RCC)     | 50 7.1%      |
| Bladder cancer              | 45 6.4%      |
| Esophagus cancer            | 20 2.8%      |
| Other                       | 144 20.5%    |
| <b>Line of first ICI</b>    |              |
| Line 1                      | 308 44%      |
| Line 2                      | 259 37%      |
| Line 3                      | 75 11%       |
| Line 4 and further lines    | 32 8%        |

### OS across all cancer types



### OS in lung cancer pts



## Discussion

No difference in OS and PFS was found in pts with different smoking status treated with ICI, neither in all pts nor in the subgroups by cancer type.

The lack of difference in OS and PFS in lung cancer pts treated with ICI was astounding, as it contradicts previous studies [1]. Interestingly, high numerical differences in OS were seen in melanoma and renal cell cancer pts, however not statistically significant. Further studies with more pts are needed.

## References

[1] Zhao, W., et al., Impact of Smoking History on Response to Immunotherapy in Non-Small Cell Lung Cancer: A Systematic Review and Meta-Analysis. Front Oncol, 2021. 11: p. 703143.

**Acknowledgements**  
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