

Real-world first-line treatment characteristics and physician drivers in advanced/metastatic non-small cell lung cancer, PD-L1 $\geq 50\%$ and without actionable genomic alterations

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Supplementary materials

Supplementary Methods: Treatment groupings

1L IO monotherapy: pembrolizumab, cemiplimab, atezolizumab, nivolumab, and tislelizumab.

1L IO + chemotherapy: carboplatin + pemetrexed + pembrolizumab, cisplatin + pemetrexed + pembrolizumab, carboplatin + nab-paclitaxel + pembrolizumab, carboplatin + paclitaxel + pembrolizumab, carboplatin + durvalumab, cisplatin + vinorelbine + durvalumab, paclitaxel + sintilimab, carboplatin + pemetrexed + atezolizumab, carboplatin + nab-paclitaxel + tislelizumab, carboplatin + pemetrexed + tislelizumab, carboplatin + nab-paclitaxel + docetaxel + pembrolizumab, carboplatin + atezolizumab, cisplatin + gemcitabine + pembrolizumab, cisplatin + nab-paclitaxel + nivolumab, cisplatin + nab-paclitaxel + pembrolizumab, cisplatin + paclitaxel + pembrolizumab, cisplatin + pembrolizumab, cisplatin + pemetrexed + pertuzumab, carboplatin + paclitaxel + irinotecan + pembrolizumab, carboplatin + paclitaxel + nivolumab, carboplatin + gemcitabine + pembrolizumab, carboplatin + gemcitabine + sintilimab, paclitaxel + camrelizumab, carboplatin + nab-paclitaxel + atezolizumab, pemetrexed + pembrolizumab, and pemetrexed + sintilimab.

Other 1L: carboplatin + paclitaxel, carboplatin + nab-paclitaxel, carboplatin + paclitaxel + bevacizumab + atezolizumab, cisplatin + pemetrexed, carboplatin + pemetrexed, gemcitabine, cisplatin + docetaxel, carboplatin + gemcitabine, osimertinib, paclitaxel, dabrafenib + trametinib, carboplatin + S-1, cisplatin + gemcitabine, carboplatin + docetaxel, cisplatin + pemetrexed + bevacizumab + pembrolizumab, afatinib, bevacizumab, other (specify) + other (specify), carboplatin, carboplatin + pemetrexed + ceritinib + atezolizumab, pembrolizumab + other (specify), pemetrexed + osimertinib, and S-1.

Supplementary Table S1: Physician-reported patient demographics and clinical characteristics, stratified by region/country where the patient was consulting physician

	Asia	Europe	US
Age, n	n=90	n=368	n=53
Mean (SD)	68.8 (12.2)	68.8 (7.4)	65.9 (8.1)
Biological sex, n (%)	n=90	n=368	n=53
Male	69 (77%)	267 (73%)	31 (58%)
Female	21 (23%)	101 (27%)	22 (42%)
Ethnicity ¹, n (%)	n=0	n=306	n=53
White	0 (0%)	298 (97%)	31 (58%)
Black/African American/African or Caribbean	0 (0%)	2 (1%)	17 (32%)
Employment status, n (%)	n=90	n=368	n=53
Not working due to retirement	50 (56%)	260 (71%)	23 (43%)
On long term sick leave	6 (7%)	38 (10%)	5 (9%)
Working full time	10 (11%)	14 (4%)	7 (13%)
Homemaker	6 (7%)	21 (6%)	5 (9%)
Comorbidities ², n (%)	n=90	n=368	n=53
Chronic pulmonary disease	17 (19%)	95 (26%)	15 (28%)
Diabetes without chronic complications	7 (8%)	68 (18%)	14 (26%)
Peripheral vascular disease	5 (6%)	30 (8%)	4 (8%)
Not diagnosed with any concomitant conditions	45 (50%)	157 (43%)	17 (32%)
Smoking status, n (%)	n=90	n=368	n=53
Current/Former smoker	68 (76%)	334 (91%)	44 (83%)
Disease status at aNSCLC diagnosis, n (%)	n=90	n=368	n=53
De Novo	66 (73%)	308 (84%)	46 (87%)
Progressed	20 (22%)	39 (11%)	5 (9%)
Unknown	4 (4%)	21 (6%)	2 (4%)
Staging at aNSCLC diagnosis, n (%)	n=90	n=347	n=50
Stage IVA/IVB	75 (83%)	335 (97%)	48 (96%)
Stage IIIB/IIIC	15 (17%)	12 (3%)	2 (4%)
Type of aNSCLC, n (%)	n=90	n=368	n=53
Adenocarcinoma	50 (56%)	231 (63%)	42 (79%)
Squamous cell	37 (41%)	131 (36%)	10 (19%)
Large cell carcinoma	3 (3%)	5 (1%)	1 (2%)
Other	0 (0%)	1 (0%)	0 (0%)
Primary sites of metastases, n (%)	n=75	n=349	n=50
Contralateral lung	30 (40%)	139 (40%)	23 (46%)
Lymphatic system / lymph nodes: regional	18 (24%)	100 (29%)	11 (22%)
Bone	10 (13%)	71 (20%)	6 (12%)
Pleura	12 (16%)	50 (14%)	8 (16%)
Adrenal glands	2 (3%)	48 (14%)	7 (14%)
Liver	1 (1%)	41 (12%)	12 (24%)
Lymphatic system / lymph nodes: distant	10 (13%)	29 (8%)	9 (18%)
Brain/CNS	2 (3%)	15 (4%)	2 (4%)
ECOG PS at initiation of most recent NSCLC treatment, n (%)	n=90	n=368	n=53
0-1	74 (82%)	295 (80%)	33 (62%)
2	16 (18%)	70 (19%)	20 (38%)
Unknown / not assessed	0 (0%)	3 (1%)	0 (0%)

	Asia	Europe	US
PD-L1 expression, n (%)	n=90	n=368	n=53
50–59%	14 (16%)	92 (25%)	17 (32%)
60–69%	13 (14%)	100 (27%)	17 (32%)
70–79%	26 (29%)	67 (18%)	8 (15%)
80–89%	15 (17%)	52 (14%)	5 (9%)
90–99%	17 (19%)	43 (12%)	6 (11%)
100%	5 (6%)	14 (4%)	0 (0%)
Patient treatment received prior to progression*, n (%)	n=20	n=39	n=5
Surgery	15 (75%)	34 (87%)	2 (40%)
Adjuvant (following surgery)	2 (10%)	16 (41%)	1 (20%)
Neoadjuvant (prior to surgery)	0 (0%)	7 (18%)	1 (20%)
Radiotherapy	1 (5%)	3 (8%)	3 (60%)
Drug treatment	2 (10%)	3 (8%)	1 (20%)
None of the above	4 (20%)	2 (5%)	0 (0%)

¹ Other ethnicities included East or Southeast Asian, Middle Eastern or North African, South or Central American Native, South Asian (Indian subcontinent). Due to local restrictions, ethnicity data was not collected in China or Japan.

² Comorbidities also reported at data collection included: congestive heart failure, renal disease, myocardial infarction, cerebrovascular disease, rheumatologic disease, mild liver disease, peptic ulcer disease, diabetes with chronic complications, moderate or severe liver disease, long term effects of COVID-19, AIDS/HIV, dementia, and other.

*Patients initially diagnosed at early stage (stage I-IIIa) with a known NSCLC treatment history prior to aNSCLC progression.

Supplementary Table S2: Physician-reported patient demographics and clinical characteristics, stratified by whether a patient questionnaire was completed where the patient was consulting physician

	All regions	
	PSC	No PSC
Age, n	n=148	n=363
Mean (SD)	68.1 (9.46)	68.6 (8.11)
Biological sex, n (%)	n=148	n=363
Male	108 (73%)	259 (71%)
Female	40 (27%)	104 (29%)
Comorbidities¹, n (%)	n=148	n=363
Chronic pulmonary disease	43 (29%)	84 (23%)
Diabetes without chronic complications	26 (18%)	63 (17%)
Peripheral vascular disease	8 (5%)	31 (9%)
Not diagnosed with any concomitant conditions	54 (36%)	165 (45%)
Disease status at aNSCLC diagnosis, n (%)	n=145	n=339
De Novo	116 (80%)	304 (90%)
Progressed	29 (20%)	35 (10%)
Staging at aNSCLC diagnosis, n (%)	n=144	n=343
Stage IVA/IVB	132 (92%)	326 (95%)
Stage IIIB/IIIC	12 (8%)	17 (5%)

	All regions	
	PSC	No PSC
ECOG PS at initiation of most recent NSCLC treatment, n (%)	n=148	n=363
0-1	115 (78%)	287 (79%)
2	30 (20%)	76 (21%)
Unknown / not assessed	3 (2%)	0 (0%)

¹ Comorbidities also reported at data collection included: congestive heart failure, renal disease, myocardial infarction, cerebrovascular disease, rheumatologic disease, mild liver disease, peptic ulcer disease, diabetes with chronic complications, moderate or severe liver disease, long term effects of COVID-19, AIDS/HIV, dementia, and other.

*Patients initially diagnosed at early stage (stage I-IIIa) with a known NSCLC treatment history prior to aNSCLC progression.

Supplementary Table S3: Physician-reported patient demographics and clinical characteristics, stratified by biological sex where the patient was consulting physician

	All regions	
	Male	Female
Age, n	n=367	n=144
Mean (SD)	69.1 (8.45)	66.9 (8.54)
Comorbidities¹, n (%)	n=367	n=144
Chronic pulmonary disease	97 (26%)	30 (21%)
Diabetes without chronic complications	70 (19%)	19 (13%)
Peripheral vascular disease	31 (8%)	8 (6%)
Not diagnosed with any concomitant conditions	152 (41%)	67 (47%)
Disease status at aNSCLC diagnosis, n (%)	n=347	n=137
De Novo	302 (87%)	118 (86%)
Progressed	45 (13%)	19 (14%)
Staging at aNSCLC diagnosis, n (%)	n=351	n=136
Stage IVA/IVB	328 (93%)	130 (96%)
Stage IIIB/IIIC	23 (7%)	6 (4%)
ECOG PS at initiation of most recent NSCLC treatment, n (%)	n=367	n=144
0-1	298 (81%)	104 (72%)
2	67 (18%)	39 (27%)
Unknown / not assessed	2 (1%)	1 (1%)

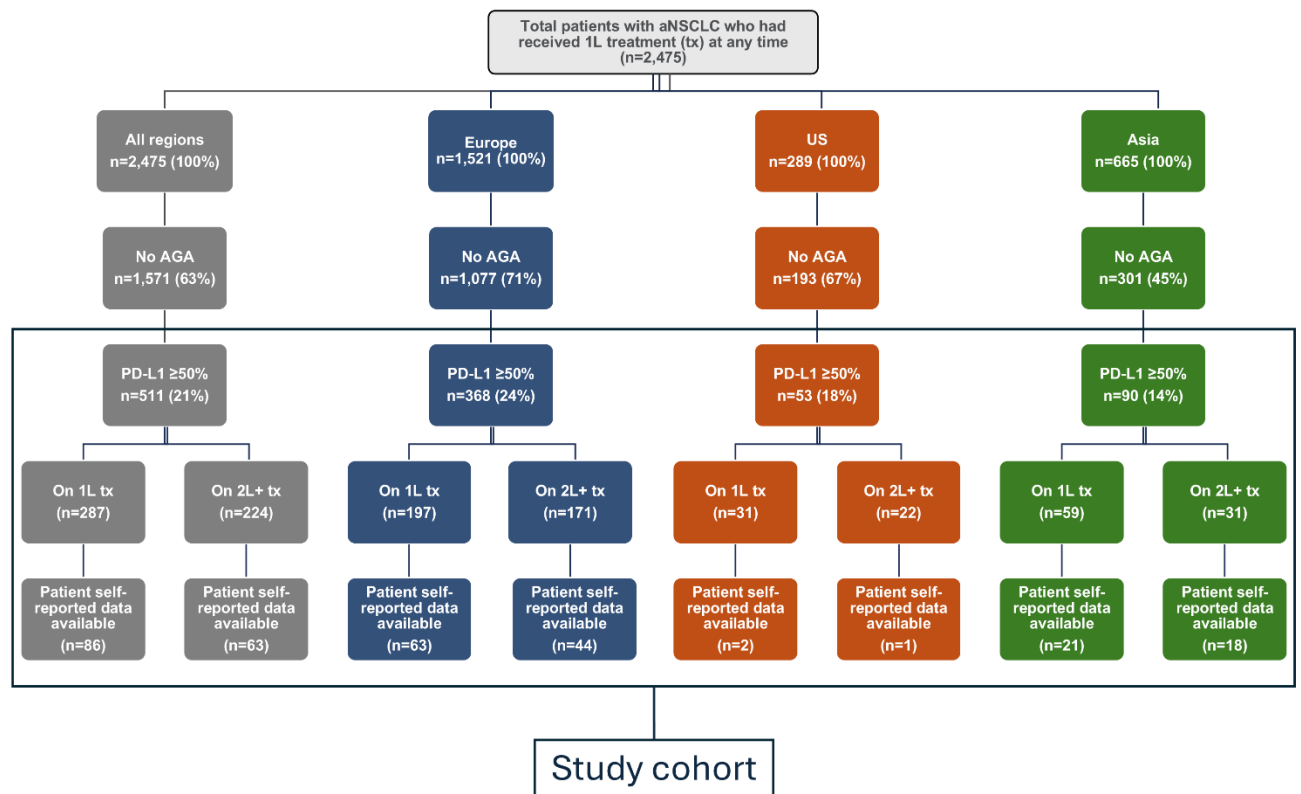
¹ Comorbidities also reported at data collection included: congestive heart failure, renal disease, myocardial infarction, cerebrovascular disease, rheumatologic disease, mild liver disease, peptic ulcer disease, diabetes with chronic complications, moderate or severe liver disease, long term effects of COVID-19, AIDS/HIV, dementia, and other.

*Patients initially diagnosed at early stage (stage I-IIIa) with a known NSCLC treatment history prior to aNSCLC progression.

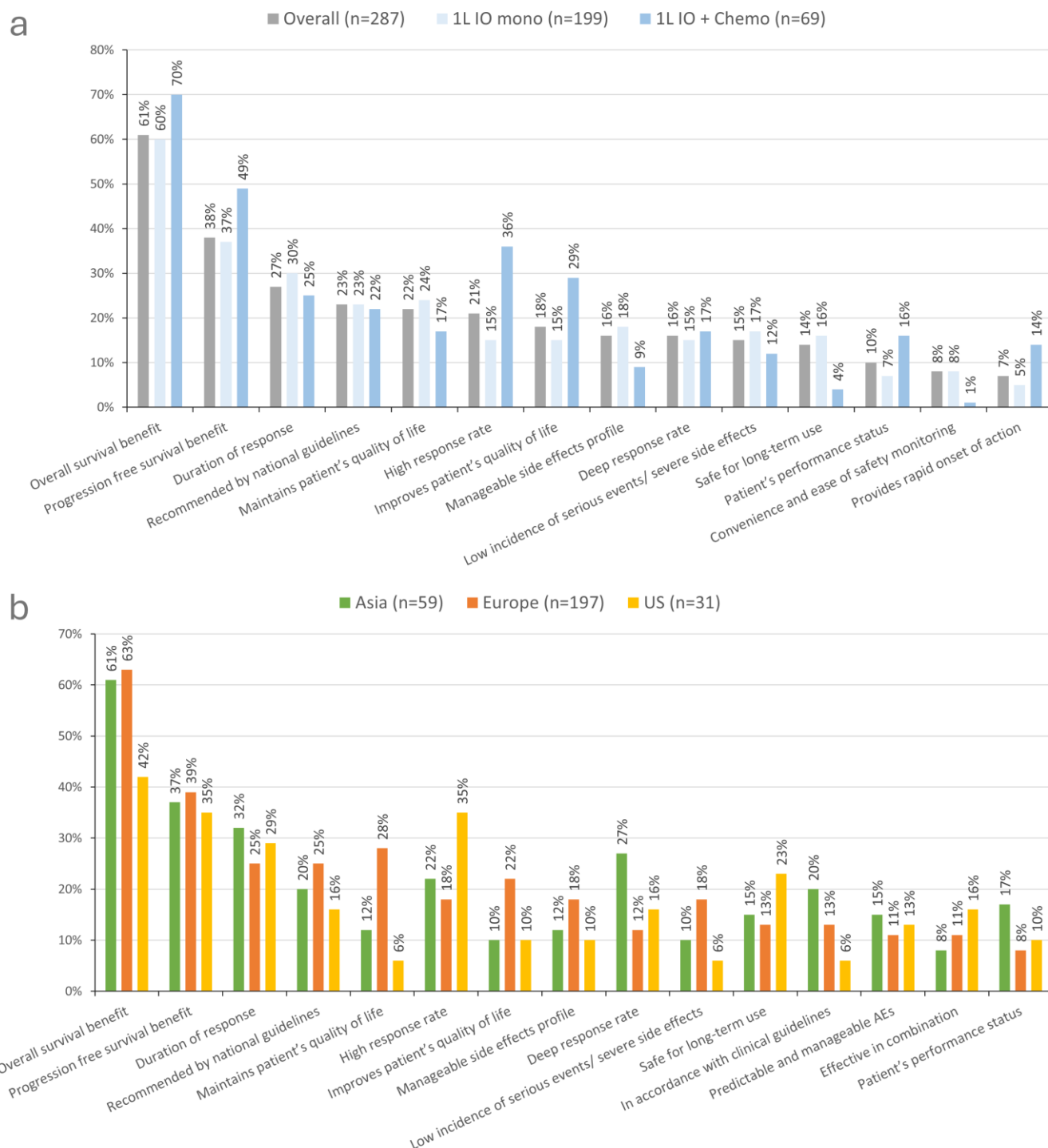
Supplementary Table S4: First-line aNSCLC treatment combinations prescribed to patients, stratified by region/country where the patient was consulting physician

	Asia	Europe	US
1L treatment combinations, n (%)	n=90	n=368	n=53
Pembrolizumab	37 (41%)	223 (61%)	29 (55%)
Carboplatin + Pemetrexed + Pembrolizumab	9 (10%)	36 (10%)	6 (11%)
Cemiplimab	0 (0%)	24 (7%)	0 (0%)
Atezolizumab	2 (2%)	19 (5%)	1 (2%)
Cisplatin + Pemetrexed + Pembrolizumab	0 (0%)	14 (4%)	3 (6%)
Carboplatin + Nab-Paclitaxel + Pembrolizumab	6 (7%)	1 (0%)	1 (2%)
Carboplatin + Paclitaxel	2 (2%)	4 (1%)	1 (2%)
Carboplatin + Paclitaxel + Pembrolizumab	0 (0%)	4 (1%)	3 (6%)
Carboplatin + Nab-Paclitaxel	4 (4%)	2 (1%)	0 (0%)
Carboplatin + Durvalumab	0 (0%)	6 (2%)	0 (0%)
Carboplatin + Paclitaxel + Bevacizumab + Atezolizumab	2 (2%)	2 (1%)	1 (2%)
Cisplatin + Pemetrexed	0 (0%)	4 (1%)	0 (0%)
Carboplatin + Pemetrexed	0 (0%)	3 (1%)	1 (2%)
Gemcitabine	1 (1%)	3 (1%)	0 (0%)
Nivolumab	2 (2%)	0 (0%)	2 (4%)
Cisplatin + Docetaxel	2 (2%)	2 (1%)	0 (0%)
Cisplatin + Vinorelbine + Durvalumab	0 (0%)	3 (1%)	0 (0%)
Paclitaxel + Sintilimab	3 (3%)	0 (0%)	0 (0%)
Carboplatin + Gemcitabine	2 (2%)	1 (0%)	0 (0%)
Carboplatin + Pemetrexed + Atezolizumab	2 (2%)	0 (0%)	0 (0%)
Osimertinib	0 (0%)	2 (1%)	0 (0%)
Paclitaxel	0 (0%)	2 (1%)	0 (0%)
Dabrafenib + trametinib	0 (0%)	2 (1%)	0 (0%)
Carboplatin + Nab-Paclitaxel + Tislelizumab	2 (2%)	0 (0%)	0 (0%)

Supplementary Figure S1: Patient attrition used for study



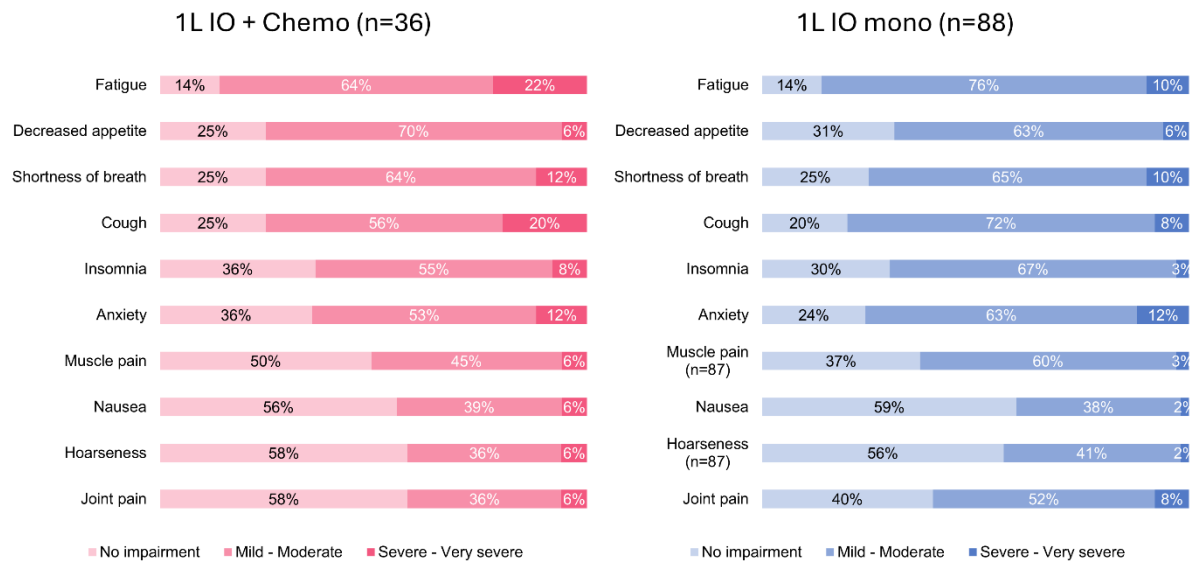
Supplementary Figure S2: Physician-reported key reasons for 1L treatment selection stratified by a) overall, 1L IO + Chemo and 1L IO mono, and b) by study region



Deep response rate – depth of response is defined as the maximum percentage of tumor reduction from the initial baseline measurement. It is a continuous measurement, providing a detailed evaluation of a patient's reaction to treatment.

High response rate – a categorical measurement, referring to the Response Evaluation Criteria in Solid Tumors (RECIST) in reference to the shrinkage of the tumor. Serves as a key indicator of treatment efficacy and a positive prognosis for a patient.

Supplementary Figure S3: Patient-reported severity of NSCLC symptoms experienced at the time of data collection, stratified by 1L IO + chemotherapy and 1L IO monotherapy



Supplementary Figure S4: a) Physician-reported and b) corresponding patient-reported level of patient impairment, stratified by 1L IO + chemotherapy and 1L IO monotherapy

