

Sex-Related Differences in Impact On Safety Of Pharmacogenetic Profile For Colon Cancer Patients Treated With FOLFOX-4 or XELOX Adjuvant Chemotherapy

¹Annamaria Ruzzo^{§*}, ²Francesco Graziano[§], ³Francesca Galli, ³Fabio Galli, ³Eliana Rulli, ⁴Sara Lonardi, ⁵Monica Ronzoni, ⁶Bruno Massidda, ⁴Vittorina Zagonel, ⁷Nicoletta Pella, ⁸Claudia Mucciarini, ⁹Roberto Labianca, ⁶Maria Teresa Ionta, ¹Irene Bagaloni, ¹⁰Enzo Veltri, ¹¹Pietro Sozzi, ¹²Sandro Barni, ⁵Vincenzo Ricci, ¹³Luisa Foltran, ¹⁴Mario Nicolini, ¹⁵Edoardo Biondi, ¹⁶Annalisa Bramati, ¹⁷Daniele Turci, ¹⁸Silvia Lazzarelli, ¹⁹Claudio Verusio, ⁴Francesca Bergamo, ²⁰Alberto Sobrero, ²¹Luciano Frontini, ¹Mauro Magnani.

¹Department of Biomolecular Sciences, Università degli Studi di Urbino “Carlo Bo”, Urbino, Italy. ²Azienda Ospedaliera “Ospedali Riuniti Marche Nord”, Pesaro, Italy. ³Laboratory of Methodology for Clinical research, Department of Oncology, Istituto di Ricerche Farmacologiche Mario Negri IRCCS, Milano, Italy. ⁴IOV- IRCCS, Padova, Italy. ⁵Ospedale San Raffaele, Milano, Italy. ⁶Azienda Ospedaliera Universitaria di Cagliari, P.O. Monserrato, Italy. ⁷Azienda Ospedaliera S. Maria della Misericordia, Udine, Italy. ⁸Ospedale “B. Ramazzini”, Carpi, Italy. ⁹Ospedale Papa Giovanni XXIII, Bergamo, Italy. ¹⁰Ospedale di Gaeta ASL Latina, Italy. ¹¹Ospedale degli Infermi di Biella. ¹²Ospedale “Treviglio-Caravaggio”, Treviglio, Italy. ¹³Azienda Ospedaliera Santa Maria degli Angeli, Pordenone, Italy. ¹⁴Azienda Ospedaliera Ospedale “Cervesi”, Cattolica, Italy. ¹⁵Ospedale “F. Renzetti”, Lanciano, Italy. ¹⁶Azienda Ospedaliera Fatebenefratelli, Milano, Italy. ¹⁷AUSL Ospedale di Ravenna, Ravenna, Italy. ¹⁸Azienda Ospedaliera di Cremona, Cremona, Italy. ¹⁹Ospedale di Saronno, Saronno, Italy. ²⁰Azienda Ospedaliera “Ospedale San Martino”, Genova, Italy. ²¹Fondazione GISCAD, Parabiago, Italy.

[§]A. Ruzzo and F. Graziano contributed equally to the study

*Annamaria Ruzzo, Department of Biomolecular Sciences (DiSB)
University of Urbino "Carlo Bo", Via Arco d'Augusto, 2 Italy 61032-FANO (PU)
Tel: +390722304957 *e-mail: annamaria.ruzzo@uniurb.it

Supplementary Tables and Figure

Table S1. Demographic and clinical characteristics. Comparison between the TOSCA trial and the ancillary study samples.

	Ancillary study N=512	TOSCA trial N=3654	P-value
Age			0.9838
Mean (SD)	63.3 (9.5)	63.3 (9.7)	
Median (Q1 - Q3)	64.0 (57.4-70.7)	64.5 (57.3-70.6)	
Min - Max	25.1 - 82.3	21.0 - 83.8	
Sex			0.4534
Maschio	294 (57.4)	2034 (55.7)	
Femmina	218 (42.6)	1620 (44.3)	
Missing	0	3654	
ECOG Performance status - n (%)			0.1051*
0	494 (96.5)	3461 (94.8)	
1	18 (3.5)	189 (5.2)	
2	0 (0.0)	1 (0.0)	
Missing	0	3	
Tumor site			0.0323
Single site	489 (95.5)	3541 (97.2)	
Multiple site	23 (4.5)	101 (2.8)	
Missing	0	12	
Single site specification - n (%)			0.5615
Ascending colon	138 (28.2)	1106 (31.3)	
Hepatic flexure	27 (5.5)	150 (4.2)	
Transverse colon	32 (6.5)	240 (6.8)	
Splenic flexure	24 (4.9)	134 (3.8)	
Descending colon	73 (14.9)	556 (15.7)	
Sigmoid colon	131 (26.8)	895 (25.3)	
Sigmoid-rectum colon	64 (13.1)	455 (12.9)	
Missing	23	118	
Tumor site - n (%)			0.3008
Right sides	198 (38.7)	1501 (41.3)	
Left sides	293 (57.2)	2024 (55.7)	
Multiple site	21 (4.1)	112 (3.1)	
Missing	0	17	

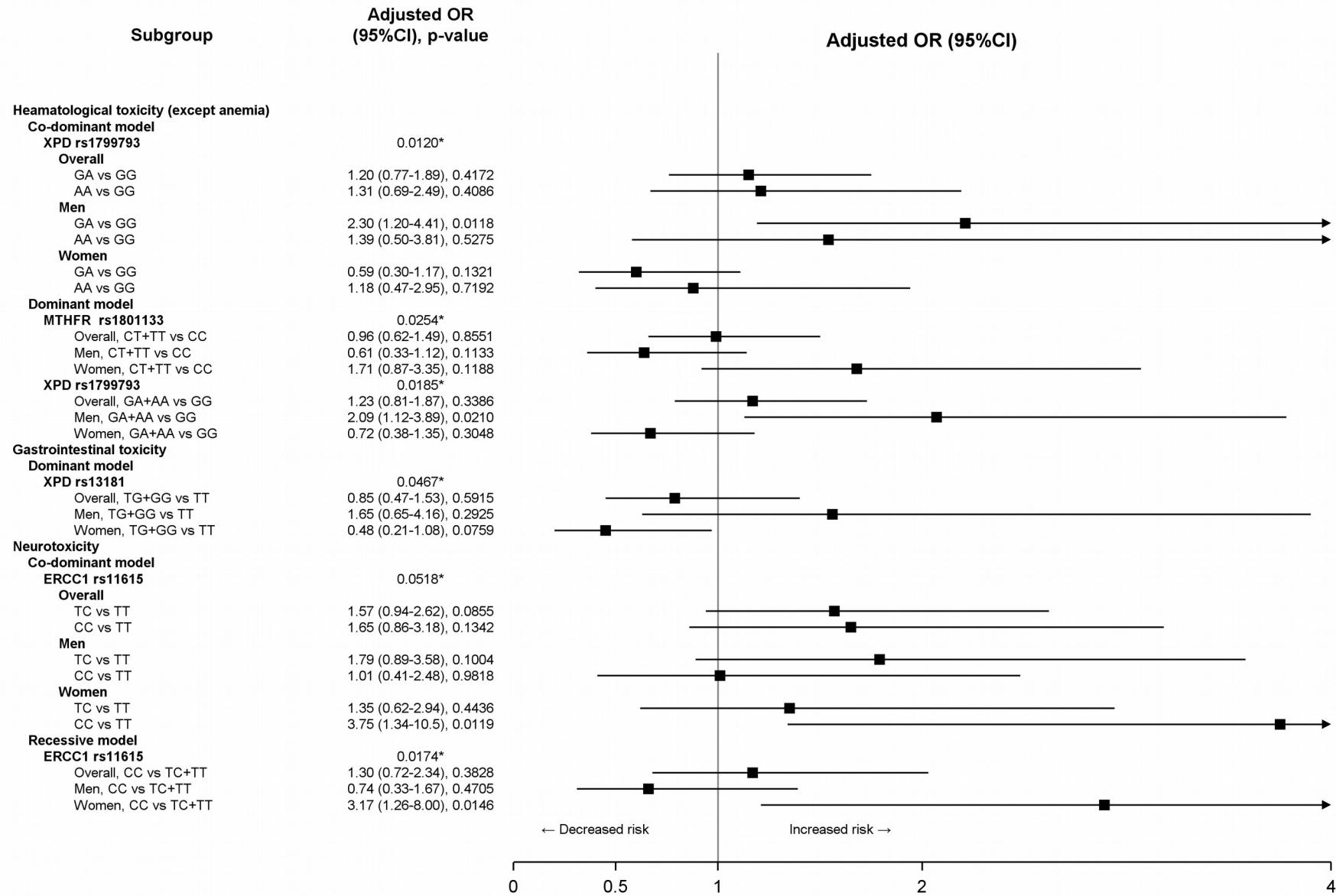
*Comparison was performed excluding patients with performance status equal to 2.

Table S2. Tumor characteristics. Comparison between the TOSCA trial and the ancillary study samples.

	Ancillary study N=512	TOSCA trial N=3654	P-value
Histology - n (%)			0.4270
Adenocarcinoma	441 (86.1)	3217 (88.2)	
Adenocarcinoma mucoide	65 (12.7)	398 (10.9)	
Carcinoma a cellule ad anello con castone	3 (0.6)	16 (0.4)	
Altro	1 (0.2)	7 (0.2)	
Carcinoma midollare	2 (0.4)	3 (0.1)	
Carcinoma adenosquamoso	0 (0.0)	4 (0.1)	
Carcinoma a cellule squamose	0 (0.0)	1 (0.0)	
Missing	0	8	
Histology categorization - n (%)			0.3636
Adenocarcinoma	441 (86.1)	3217 (88.2)	
Adenocarcinoma mucoide	65 (12.7)	398 (10.9)	
Altro	6 (1.2)	31 (0.9)	
Missing	0	8	
T stage - n (%)			0.4702
Tx	1 (0.2)	12 (0.3)	
T0	0 (0.0)	2 (0.1)	
T1	12 (2.3)	76 (2.1)	
T2a	15 (2.9)	169 (4.6)	
T2b	16 (3.1)	78 (2.1)	
T3	385 (75.2)	2710 (74.5)	
T4	83 (16.2)	590 (16.2)	
Missing	0	17	
N stage - n (%)			0.4740
Nx	0 (0.0)	11 (0.3)	
N0	185 (36.1)	1232 (34.0)	
N1	237 (46.3)	1748 (48.2)	
N2	90 (17.6)	637 (17.6)	
Missing	0	26	
Clinical stage - n (%)			0.4777
II	185 (36.1)	1262 (34.5)	
III	327 (63.9)	2392 (65.5)	
Clinical stage subgrups - n (%)			0.7865
II	185 (36.1)	1262 (34.7)	
III low risk	212 (41.4)	1558 (42.9)	
III high risk	115 (22.5)	815 (22.4)	
Missing	0	19	

	Ancillary study N=512	TOSCA trial N=3654	P-value
Grade - n (%)			0.3210
GX: non valutabile	4 (0.8)	19 (0.5)	
G1: ben differenziato	38 (7.5)	211 (5.9)	
G2: mediamente differenziato	307 (60.6)	2295 (63.8)	
G3: scarsamente differenziato	158 (31.2)	1072 (29.8)	
Missing	5	57	
Chemotherapy taken during the TOSCA trial - n (%)			0.0010
Folfox-4 (6 months)	186 (36.3)	1195 (32.7)	
Xelox (24 weeks)	71 (13.9)	686 (18.8)	
Folfox-4 (3 months)	187 (36.5)	1139 (31.2)	
Xelox (12 weeks)	68 (13.3)	634 (17.4)	

Note. In TOSCA trial, treatment with Xelox was allowed when the recruitment in this ancillary study was almost concluded. No difference was detected in treatment duration (3 or 6 months) between the TOSCA and ancillary samples ($p=0.5866$).



* P-value of interaction

Figure S1 – Logistic regression for time to haematological toxicity (TTH), time to gastrointestinal toxicity (TTG) and time to neurotoxicity (TTN)