

## Supplementary Online Content

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This supplementary material has been provided by the authors to give readers additional information about their work.

**eTable 1.** Examples of Trial Selection in the Present Study

Indication Label	Trials Considered (Phase)	Trial Selected: Reason for Selection
#38	AVEX (3) & MAX (3)	<b>AVEX:</b> Specifically enrolled elderly patients not otherwise eligible for oxaliplatin- or irinotecan-based first line therapy. This was the stated indication of the pCODR submission, and thus more directly representative.
#41	KEYNOTE-006 (3) & KEYNOTE-002 (2)	<b>KEYNOTE-006:</b> On the basis of phase, and directly testing the investigational agent against the Canadian standard of care (Ipilimumab) as opposed to a control arm no longer used in Canada (chemotherapy)
#90	PROFILE 1001 (1) & Ox Onc (2)	<b>PROFILE 1001:</b> As neither trial was randomized, and both lacked comparator groups, PROFILE 1001 was chosen because it was conducted in the USA, Australia and South Korea, as opposed to strictly East Asian countries as with Ox Onc. This made the results of PROFILE 1001 more directly applicable to the Canadian patient population.

**eTable 2.** Characteristics of the pCODR Submissions for Solid-Tumor Indications Between 2011-2020

<b>Submission Characteristic</b>	<b>N (%)</b>
Total number	104 (100)
Submission Type	
New Indication	54 (51.9)
New Drug	41 (39.4)
Resubmission	9 (8.7)
Drug Class [Unique Drugs]	
Small Molecule	48 (46.2), [29]
Immune Checkpoint Inhibitor	23 (22.1), [8]
Monoclonal Antibody	14 (12.5), [8]
Cytotoxic	7 (6.7), [6]
Hormonal	6 (5.8), [4]
Other	6 (5.8), [4]
Tumour Site	
Lung	25 (24.0)
Gastrointestinal	18 (17.3)
Breast	14 (13.5)
Genitourinary	14 (13.5)
Melanoma	14 (13.5)
Gynecological	6 (5.8)
Other	13 (12.5)
Treatment Setting	
Advanced/Metastatic	97 (93.2)
Adjuvant	6 (5.8)
Neoadjuvant	1 (1.0)
Line of Therapy <sup>^</sup>	
1	37 (38.1)
2+	56 (57.7)
Maintenance	4 (4.1)
Final Decision	
Conditionally Recommend	72 (69.2)
Do Not Recommend	26 (25.0)
Recommend	6 (5.8)

<sup>^</sup>If advanced/metastatic treatment setting

**eTable 3.** List of All 104 Oncology Drugs With Final Recommendations From pCODR Between 2011-2020

Indication Label	Therapeutic	Disease Setting	Decision Date	Recommend?	Trial#
1	Pazopanib	RCC – 1L	20-Jan-12	Yes	NCT00334282
2	Sunitinib	pNET	18-May-12	Conditional	NCT00428597
3	Ipilimumab	Melanoma – 2L	02-May-12	Conditional	NCT00094653
4	Vemurafenib	BRAF V600+ Melanoma - 1L	18-Jun-12	Conditional	NCT01006980
5	Eribulin	BrCA – 3L	20-Aug-12	Conditional	NCT00388726
6	Everolimus	pNET	17-Sep-12	Conditional	NCT00510068
7	Crizotinib	ALK+ NSCLC	22-Oct-12	No	NCT00585195
8	Pazopanib	STS – 2L	14-Dec-12	No	NCT00753688
9	Axitinib	RCC – 2L	22-Mar-13	Yes	NCT00678392
10	Everolimus	BrCA – 2L w/ exemestane	11-Apr-13	Conditional	NCT00863655
11	Crizotinib	ALK+ NSCLC	17-May-13	Conditional	NCT00932893
12	Pertuzumab	HER2+ BrCA – 1L w/ taxane & trastuzumab	19-Aug-13	Conditional	NCT00567190
13	Lapatinib	HER2+ BrCA w/ letrozole	22-Jul-13	No	NCT00073528
14	Pazopanib	RCC- 1L	16-Sep-13	Yes	NCT00720941
15	Enzalutamide	CRPC – 2L	13-Aug-13	Yes	NCT00974311
16	Trastuzumab emtansine	HER2+ BrCA – 2L	27-Jan-14	Conditional	NCT00829166
17	Dabrafenib	BRAF V600+ Melanoma - 1L	20-Dec-13	Conditional	NCT01227889
18	Regorafenib	CRC – 2L	02-Dec-13	No	NCT01103323
19	Abiraterone	CRPC – 1L (after ADT)	06-Nov-13	Conditional	NCT00887198
20	Trametinib	BRAF V600+ Melanoma	06-Nov-13	Conditional	NCT01245062
21	Pemetrexed	NSCLC -1L maintenance	04-Dec-13	Conditional	NCT00789373
22	Afatinib	EGFR+ NSCLC – 1L	20-May-14	Conditional	NCT00949650
23	Vismodegib	BCC – 1L	27-Jan-14	Conditional	NCT00833417
24	Cetuximab	EGFR+ CRC – 1L w/ FOLFIRI	27-Jan-14	No	NCT00433927
25	Regorafenib	GIST – 2L	20-May-14	Conditional	NCT01271712
26	Aflibercept	CRC – 2L w/ FOLFIRI	22-Sep-14	No	NCT00561470
27	Nab-paclitaxel	Pancreatic – 1L w/ gemcitabine	08-Oct-14	Conditional	NCT00844649
28	Ipilimumab	Melanoma – 1L	14-Jan-15	Conditional	NCT00324155
29	Enzalutamide	CRPC – 1L (after ADT)	08-Jul-15	Conditional	NCT01212991
30	Bevacizumab	Cervical – 1L w/ chemotherapy	08-Apr-15	Conditional	NCT00803062

31	Bevacizumab	Ovarian/Fallopian – 1L w/ paclitaxel & carboplatin	19-Jun-15	Conditional	ISRCTN91273375
32	Pertuzumab	HER2 <sup>+</sup> BrCA – Neoadjuvant w/ trastuzumab & chemotherapy	31-Jul-15	No	NCT00545688
33	Sorafenib	DTC – 1L (after iodine)	31-Jul-15	No	NCT00984282
34	Regorafenib	CRC – 2 <sup>+</sup> L	31-Jul-15	No	NCT01103323
35	Aldesleukin	Melanoma – 1L (in-transit metastases)	08-Jul-15	Yes	NCT00204581
36	Dabrafenib & Trametinib	BRAF V600 <sup>+</sup> Melanoma - 1L	06-Aug-15	Conditional	NCT01584648
37	Crizotinib	ALK <sup>+</sup> NSCLC – 1L	06-Aug-15	Conditional	NCT01154140
38	Bevacizumab	CRC – 1L w/ capecitabine	06-Aug-15	Conditional	NCT00484939
39	Panitumumab	WT RAS CRC – 1L w/ FOLFOX	18-Dec-15	Conditional	NCT00364013
40	Ramucirumab	Gastric/GEJ – 2L +/- paclitaxel	13-Nov-15	Conditional	NCT01170663
41	Pembrolizumab	Melanoma	01-Dec-15	Conditional	NCT01866319
42	Ceritinib	ALK <sup>+</sup> NSCLC – 1L or 2L (after crizotinib)	18-Dec-15	No	NCT01283516
43	Nivolumab	Melanoma – 1 <sup>+</sup> L	18-Apr-16	Conditional	NCT01844505
44	Bevacizumab	Ovarian/Fallopian – 2L w/ chemotherapy	20-May-16	Conditional	NCT00976911
45	Nivolumab	NSCLC – 2L	20-Jun-16	Conditional	NCT01673867
46	Cobimetinib	BRAF V600 <sup>+</sup> Melanoma – 1L w/ vemurafenib	18-Jul-16	Conditional	NCT01689519
47	Trabectedin	STS – 2L	22-Aug-16	No	NCT01343277
48	Nivolumab	RCC – 2L	19-Sep-16	Conditional	NCT01668784
49	Olaparib	BRCA <sup>+</sup> Ovarian/Fallopian – 1L maintenance	17-Oct-16	No	NCT00753545
50	Osimertinib	EGFR <sup>+</sup> (T790M) NSCLC – 2L	19-May-17	Conditional	NCT02151981
51	Lenvatinib	DTC – 1L (after iodine)	05-Oct-16	Conditional	NCT01321554
52	Pembrolizumab	PD-L1 <sup>+</sup> NSCLC – 2L	18-Nov-16	Conditional	NCT01905657
53	Everolimus	NET	16-Dec-16	Conditional	NCT01524783
54	Palbociclib	ER <sup>+</sup> BrCA – 1L w/ letrozole	06-Dec-16	Conditional	NCT01740427
55	Vandetanib	MTC	17-Apr-17	Conditional	NCT00410761
56	Alectinib	ALK <sup>+</sup> NSCLC – 2L	19-May-17	No	NCT01871805
57	Ceritinib	ALK <sup>+</sup> NSCLC – 1L or 2L (after crizotinib)	05-Apr-17	Conditional	NCT01828112

58	Nivolumab & Ipilimumab	Melanoma – 1L	15-Dec-17	Conditional	NCT01844505
59	Pembrolizumab	PD-L1 <sup>+</sup> NSCLC – 1L	08-Sep-17	Conditional	NCT02142738
60	Nivolumab	SCCHN – 2L	28-Sep-17	Conditional	NCT02105636
61	Olaparib	BRCA <sup>+</sup> Ovarian/Fallopian – 1L maintenance	05-Oct-17	Conditional	NCT01874353
62	Dabrafenib & Trametinib	BRAF V600 <sup>+</sup> NSCLC – 2L	17-Nov-17	No	NCT01336634
63	Irinotecan Liposome	Pancreatic – 2L w/ 5-FU & LV	22-Jan-18	Conditional	NCT01494506
64	Fulvestrant	HER2 <sup>+</sup> BrCA – 1L (postmenopausal)	16-Feb-18	Conditional	NCT01602380
65	Pembrolizumab	UC	19-Mar-18	Conditional	NCT02256436
66	Alectinib	ALK <sup>+</sup> NSCLC – 2L	16-Apr-18	Conditional	NCT02604342
67	Panitumumab	WT RAS CRC – 1L w/ chemotherapy (left-sided tumour)	16-Apr-18	No	NCT00364013
68	Avelumab	MCC – 2L	06-Apr-18	Conditional	NCT02155647
69	Regorafenib	HCC – 2L	03-May-18	Conditional	NCT01774344
70	Ribociclib	ER <sup>+</sup> BrCA – 1L	03-May-18	Conditional	NCT01958021
71	Olaratumab	STS – 1L w/ doxorubicin	03-May-18	Conditional	NCT01185964
72	Trifluridine & Tipiracil	CRC – 2L	23-Jul-18	No	NCT01607957
73	Atezolizumab	NSCLC – 2L	06-Jul-18	Conditional	NCT02008227
74	Alectinib	ALK <sup>+</sup> NSCLC – 1L	10-Aug-18	Conditional	NCT02075840
75	Pertuzumab & Trastuzumab	HER2 <sup>+</sup> BrCA - Adjuvant	14-Dec-18	No	NCT01358877
76	Apalutamide	CRPC – 1L (non- metastatic)	16-Nov-18	Conditional	NCT01946204
77	Nivolumab & Ipilimumab	RCC – 1L (intermediate/poor risk)	16-Nov-18	Conditional	NCT02231749
78	Nivolumab	HCC – 2L	14-Dec-18	No	NCT01658878
79	Osimertinib	EGFR <sup>+</sup> NSCLC – 1L	21-Jan-19	Conditional	NCT02296125
80	Lenvatinib	RCC – 2L w/ everolimus	21-Jan-19	No	NCT01136733
81	Lutetium Lu 177	SR <sup>+</sup> GEP-NET – 2L	19-Aug-19	Conditional	NCT01578239
82	Nivolumab	Melanoma - Adjuvant	22-Mar-19	Conditional	NCT02388906
83	Pembrolizumab	NSCLC (non- squamous) – 1L w/ chemotherapy	17-Jun-19	Conditional	NCT02578680
84	Cabozantinib	RCC – 2L	07-Mar-19	Conditional	NCT01865747
85	Dacomitinib	EGFR <sup>+</sup> NSCLC – 1L	17-Jun-19	Conditional	NCT01774721

86	Dabrafenib & Trametinib	BRAF V600 <sup>+</sup> Melanoma – Adjuvant	21-May-19	Conditional	NCT01682083
87	Durvalumab	NSCLC – Maintenance (chemo+RT)	21-May-19	Conditional	NCT02125461
88	Enzalutamide	CRPC – 1L (non-metastatic)	10-Apr-19	Conditional	NCT02003924
89	Palbociclib	HR <sup>+</sup> BrCA – 2L w/ fulvestrant	21-May-19	Conditional	NCT01942135
90	Crizotinib	ROSI <sup>+</sup> NSCLC – 1L	07-Jun-19	Conditional	NCT00585195
91	Abemaciclib	HR <sup>+</sup> BrCA	22-Jul-19	Conditional	NCT02246621
92	Brigatinib	ALK <sup>+</sup> NSCLC – 2L	19-Aug-19	No	NCT02094573
93	Pembrolizumab	Melanoma - Adjuvant	19-Aug-19	Conditional	NCT02362594
94	Trifluridine & Tipiracil	CRC – 2L	16-Sep-19	No	NCT03306394
95	Lenvatinib	HCC – 1L	09-Aug-19	Conditional	NCT01761266
96	Pembrolizumab	NSCLC (squamous) – 1L w/ chemotherapy	20-Jan-20	Conditional	NCT02775435
97	Pembrolizumab	UC – 1L	21-Oct-19	No	NCT02335424
98	Larotrectinib	NTRK <sup>+</sup> Tumours – 1 <sup>+</sup> L	15-Nov-19	No	NCT02122913, NCT02637687, NCT02576431
99	Atezolizumab	ES-SCLC – 1L w/ platinum chemotherapy	14-Feb-20	No	NCT02763579
100	Neratinib	HER2 <sup>+</sup> BrCA – Adjuvant Maintenance	20-Dec-19	No	NCT00878709
101	Olaparib	BRCA <sup>+</sup> Ovarian/Fallopian -1L maintenance	20-Dec-19	Conditional	NCT01844986
102	Lorlatinib	ALK <sup>+</sup> NSCLC – 2 <sup>+</sup> L	14-Feb-20	No	NCT01970865
103	Trastuzumab emtansine	HER2 <sup>+</sup> BrCA – Adjuvant	06-Feb-20	Yes	NCT01772472
104	Cemiplimab	SCC – 1L	06-Feb-20	Conditional	NCT02760498

Note: Although pCODR started in 2011, no decisions were issued until 2012. Therefore, the decision dates in this table start from 2012.

**eTable 4.** Select Clinical Outcomes of All 104 Oncology Drugs With Final Recommendations From pCODR Between 2011-2020

Indication Label	Therapeutic	PFS Gain	OS Gain	Recommended?
1	Pazopanib	5.0	0	Yes
2	Sunitinib	5.9	Unknown Benefit	Conditional
3	Ipilimumab	0.0	3.6	Conditional
4	Vemurafenib	3.7	3.6	Conditional
5	Eribulin	0.0	2.5	Conditional
6	Everolimus	6.4	0	Conditional
7	Crizotinib	Not assessed	Not assessed	No
8	Pazopanib	3.0	0	No
9	Axitinib	2.0	0	Yes
10	Everolimus	6.5	Not assessed	Conditional
11	Crizotinib	4.7	0	Conditional
12	Pertuzumab	6.1	19.4 <sup>^</sup>	Conditional
13	Lapatinib	5.2	0	No
14	Pazopanib	0.0	0	Yes
15	Enzalutamide	5.4	4.8	Yes
16	Trastuzumab emtansine	5.8	3.2	Conditional
17	Dabrafenib	2.4	0	Conditional
18	Regorafenib	0.2	1.4	No
19	Abiraterone	8.2	9.1 <sup>^</sup>	Conditional
20	Trametinib	3.3	Unknown Benefit	Conditional
21	Pemetrexed	1.3	2.9	Conditional
22	Afatinib	4.2	0	Conditional
23	Vismodegib	Not assessed	Not assessed	Conditional
24	Cetuximab	0.0	3.7	No
25	Regorafenib	3.9	0	Conditional
26	Aflibercept	2.2	1.4	No
27	Nab-paclitaxel	1.8	1.8	Conditional
28	Ipilimumab	0.2	2.1	Conditional
29	Enzalutamide	16.6 <sup>^</sup>	2.2	Conditional
30	Bevacizumab	2.3	3.7	Conditional
31	Bevacizumab	1.7	0	Conditional
32	Pertuzumab	Not assessed	0	No
33	Sorafenib	5.0	0	No
34	Regorafenib	0.2	1.4	No
35	Aldesleukin	Not assessed	Not assessed	Yes
36	Dabrafenib & Trametinib	0.5	Unknown Benefit	Conditional
37	Crizotinib	3.9	0	Conditional
38	Bevacizumab	4.0	0	Conditional
39	Panitumumab	2.2	5.6	Conditional
40	Ramucirumab	1.5	2.2	Conditional
41	Pembrolizumab	2.7	Unknown Benefit	Conditional
42	Ceritinib	Not assessed	Not assessed	No
43	Nivolumab	4.0	Not assessed	Conditional
44	Bevacizumab	3.3	0	Conditional
45	Nivolumab	0.0	2.8	Conditional
46	Cobimetinib	5.1	4.9	Conditional
47	Trabectedin	2.7	0	No



48	Nivolumab	0.0	5.4	Conditional
49	Olaparib	3.6	0	No
50	Osimertinib	5.7	Not assessed	Conditional
51	Lenvatinib	14.7	0	Conditional
52	Pembrolizumab	0.0	1.9	Conditional
53	Everolimus	7.1	0	Conditional
54	Palbociclib	10.3	Not assessed	Conditional
55	Vandetanib	11.2	0	Conditional
56	Alectinib	Not assessed	Not assessed	No
57	Ceritinib	3.8	0	Conditional
58	Nivolumab & Ipilimumab	8.6	16.4 <sup>^</sup>	Conditional
59	Pembrolizumab	3.6	Unknown Benefit	Conditional
60	Nivolumab	0.0	2.4	Conditional
61	Olaparib	13.6	0	Conditional
62	Dabrafenib & Trametinib	Not assessed	Not assessed	No
63	Irinotecan Liposome	1.6	1.9	Conditional
64	Fulvestrant	2.8	0	Conditional
65	Pembrolizumab	0.0	2.9	Conditional
66	Alectinib	8.2	Not assessed	Conditional
67	Panitumumab	3.7	6.7	No
68	Avelumab	Not assessed	Not assessed	Conditional
69	Regorafenib	1.6	2.8	Conditional
70	Ribociclib	9.3	0	Conditional
71	Olaratumab	0.0	11.8	Conditional
72	Trifluridine & Tipiracil	0.3	1.8	No
73	Atezolizumab	0.0	4.2	Conditional
74	Alectinib	14.7 <sup>^</sup>	0	Conditional
75	Pertuzumab & Trastuzumab	Not assessed	0	No
76	Apalutamide	25.8	0	Conditional
77	Nivolumab & Ipilimumab	0.0	15.3 <sup>^</sup>	Conditional
78	Nivolumab	Not assessed	Not assessed	No
79	Osimertinib	8.7	Unknown Benefit	Conditional
80	Lenvatinib	9.1	10.1	No
81	Lutetium Lu 177	31.6 <sup>^</sup>	Unknown Benefit	Conditional
82	Nivolumab	Not assessed	Not assessed	Conditional
83	Pembrolizumab	3.9	11.8 <sup>^</sup>	Conditional
84	Cabozantinib	3.6	4.9	Conditional
85	Dacomitinib	5.5	7.3	Conditional
86	Dabrafenib & Trametinib	Not assessed	Unknown Benefit	Conditional
87	Durvalumab	11.6	13.5 <sup>^</sup>	Conditional
88	Enzalutamide	Not assessed	0	Conditional
89	Palbociclib	5.4	0	Conditional
90	Crizotinib	Not assessed	Not assessed	Conditional
91	Abemaciclib	13.4	Not assessed	Conditional
92	Brigatinib	Not assessed	Not assessed	No
93	Pembrolizumab	Not assessed	Not assessed	Conditional
94	Trifluridine & Tipiracil	Not assessed	Not assessed	No
95	Lenvatinib	3.7	0	Conditional
96	Pembrolizumab	1.6	4.6	Conditional
97	Pembrolizumab	Not assessed	Not assessed	No
98	Larotrectinib	Not assessed	Not assessed	No
99	Atezolizumab	0.9	2	No
100	Neratinib	Not assessed	Not assessed	No

101	Olaparib	32.2 <sup>^</sup>	0	Conditional
102	Lorlatinib	Not assessed	Not assessed	No
103	Trastuzumab emtansine	Not assessed	0	Yes
104	Cemiplimab	Not assessed	Not assessed	Conditional

PFS = progression-free survival, OS = overall survival.

<sup>^</sup>Indicates estimate of clinical outcome based on available data.