

Reduction–oxidation pathways involved in cancer development: a systematic review of literature reviews

Supplementary Materials

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Appendix A – Literature search

Medline literature search:

Steps	Search field	Search string	Hits
#1	MeSH Terms	neoplasms	2,765,954
#2	MeSH Terms	oxidative stress	90,523
#3	MeSH Terms	free radical	244,301
#4	MeSH Terms	signal transduction	433,482
#5		#2 OR #3	301,990
#6		#1 AND #4 AND #5	2,662
#7	Filter	Review	2,089,688
#8	Filter	Humans	15,665,093
#9		#6 AND #7 AND #8 AND #9	505
#10	Date - MeSH	“2005/01/01” to “2015/10/22”	9,379,389
#11		#9 AND #10	406

Appendix B – Excluded reviews with low information quality score

1. Agani, F. and B.H. Jiang, *Oxygen-independent regulation of HIF-1: novel involvement of PI3K/AKT/mTOR pathway in cancer*. *Curr Cancer Drug Targets*, 2013. **13**(3): p. 245-51.
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Appendix C – Included reviews

High-quality reviews scored with 6 point or more in information quality score

No.	Authors	Year	Described pathway(s)	Redox regulation	Mechanism(s) leading to cancer	Component of pathway(s)	Interaction with other pathways	Overall score
				Max. possible points: 3	Max. possible points: 3	Max. possible points: 2	Max. possible points: 2	Max. possible score:10
1	Aggarwal, B.B., et al.	2006	NF-κB	1.5	1.5	1.5	2.0	6.5
2	Bansal, M. and Kaushal, N.	2014	Redox signaling	3.0	0.0	2.0	2.0	7.0
3	Barthel, A. and Klotz, L. O.	2005	PI3K	2.5	1.0	1.0	1.5	6.0
4	Bogdan, C.	2015	NOS	3.0	0.0	2.0	1.0	6.0
5	Bourgeais, J., et al.	2013	STAT	2.5	2.5	1.0	1.5	7.5
6	Brigelius-Flohe, R. and Flohe, L.	2011	Transcription factors	2.5	1.5	1.0	1.0	6.0
7	Chiarugi, P.	2005	PTP and PTK	3.0	1.0	1.0	1.5	6.5
8	Dhillon, A. S., et al.	2007	MAPK	1.5	3.0	1.5	1.0	7.0
9	Duan, C.	2016	HIF-3	2.5	2.0	0.5	1.0	6.0
10	Eferl, R. and Wagner, E. F.	2003	AP-1	1.0	3.0	1.5	1.0	6.5
11	Fukumura, D., et al.	2006	NOS	2.0	2.5	1.0	1.0	6.5
12	Furstenberger, G., et al	2006	COX and LOX	2.0	2.0	1.0	1.0	6.0
13	Galanis, A., et al.	2008	HIF-1	3.0	2.0	0.5	1.5	7.0
14	Garg, R., et al.	2014	PKC	1.0	3.0	2.0	0.5	6.5
15	Giorgi, C., et al.	2010	PKC	2.5	1.5	1.0	2.0	7.0
16	Gocek, E., et al.	2014	NRTK	0.5	2.5	2.0	1.0	6.0
17	Holmstrom, K. M. and Finkel, T.	2014	ROS/RNS sources	2.5	1.5	1.0	2.0	7.0
18	Jiang, F., et al.	2011	NOX	2.0	1.0	1.0	2.0	6.0
19	Kappelmann, M., et al.	2014	AP-1	1.0	2.5	1.5	1.0	6.0
20	Karamouzis, M. V., et al.	2007	AP-1	0.0	2.5	1.5	2.0	6.0
21	Kim, E. K. and Choi, E.-J.	2015	MAPK	1.5	2.5	1.0	1.0	6.0
22	Knab, L. M., et al.	2014	COX and LOX	1.5	2.5	1.0	1.0	6.0

No.	Authors	Year	Described pathway(s)	Redox regulation	Mechanism(s) leading to cancer	Component of pathway(s)	Interaction with other pathways	Overall score
				Max. possible points: 3	Max. possible points: 3	Max. possible points: 2	Max. possible points: 2	Max. possible score:10
23	Korbecki, J., et al.	2013	COX	2.5	0.5	1.5	2.0	6.5
24	Kotsinas, A., et al.	2012	p53	2.5	2.5	1.0	0.0	6.0
25	Ladelfa, M. F., et al.	2011	p53, PI3K, Wnt/ β -catenin, HIF-1, MAPK	2.5	1.5	1.0	1.5	6.5
26	Landry, W. D. and Cotter, T. G.	2014	NOX	2.5	2.5	1.0	1.0	7.0
27	Leinonen, H. M., et al.	2014	Nrf2	1.5	2.0	2.0	2.0	7.5
28	Liu, W. and Phang, J. M.	2012	Proline dehydrogenase	2.5	2.0	0.5	1.5	6.5
29	MacDonald, B. T., et al.	2009	Wnt/ β -catenin	2.0	2.0	2.0	1.5	7.5
30	Maillet, A. and Pervaiz, S.	2012	p53	2.5	2.5	0.5	2.0	7.5
31	Martini, M., et al.	2014	PI3Ks	1.5	2.5	1.5	1.0	6.5
32	McCubrey, J. A., et al.	2006	MAPK	2.5	1.5	1.5	1.0	6.5
33	Meitzler, J. L., et al.	2014	NOX	2.5	2.5	1.0	1.0	7.0
34	Monga, S. P.	2011	Wnt/ β -catenin	1.5	2.5	1.5	1.0	6.5
35	Movafagh, S., et al.	2015	HIF-1	2.5	1.5	1.0	1.0	6.0
36	Myatt, S. S., et al.	2011	FOXO	2.5	2.5	1.0	0.5	6.5
37	Na, H. K. and Surh, Y. J.	2014	Nrf2	2.0	1.5	1.0	1.5	6.0
38	Nakanishi, A., et al.	2014	PI3K	2.0	1.5	1.5	1.0	6.0
39	Oeckinghaus, A. and Ghosh, S.	2009	NF- κ B	2.5	1.5	1.5	1.0	6.5
40	Ostman, A., et al.	2006	PTP	2.0	1.5	1.0	1.5	6.0
41	Pani, G. and Galeotti, T.	2011	P53	2.5	1.5	1.0	2.0	7.0
42	Parri, M. and Chiarugi, P.	2013	PTK, PTP, P53, Nrf2, Nf-kB	2.5	2.5	1.0	1.0	7.0
43	Qin, F., et al.	2013	Protein kinase Hippo	2.0	2.0	1.5	0.5	6.0
44	Regad, T.	2015	RTKs	1.0	2.5	1.5	1.5	6.5
45	Saito-Diaz, K., et al.	2013	Wnt/ β -catenin	1.5	2.0	2.0	1.0	6.5

No.	Authors	Year	Described pathway(s)	Redox regulation	Mechanism(s) leading to cancer	Component of pathway(s)	Interaction with other pathways	Overall score
				Max. possible points: 3	Max. possible points: 3	Max. possible points: 2	Max. possible points: 2	Max. possible score:10
46	Samanta, D. and Datta, P.K.	2012	Smad	0.5	2.5	2.0	1.0	6.0
47	Sarkar, F. H., et al.	2008	NF-κB	2.0	2.0	1.0	1.0	6.0
48	Shelton, P. and Jaiswal, A. K.	2013	Nrf2	2.5	1.0	0.5	2.0	6.0
49	Speed, N. and Blair, I. A.	2011	COX and LOX	2.0	2.0	1.0	1.0	6.0
50	Storz, P.	2011	FOXO	2.5	1.5	1.0	2.0	7.0
51	Tell, G., et al.	2009	APE1/Ref-1	3.0	1.0	0.5	2.0	6.5
52	Thakur, S., et al.	2014	APE1/Ref-1	1.5	1.5	1.0	2.0	6.0
53	Tokarz, P. and Blasiak, J.	2014	Mitochondria	1.5	2.5	1.0	1.0	6.0
54	Tonks, N. K.	2006	PTP	1.5	2.5	2.0	0.5	6.5
55	Vannini, F., et al.	2015	NOS	2.0	2.5	1.0	1.0	6.5
56	Verschoor, M. L., et al.	2010	Est-1	2.5	2.5	1.0	0.5	6.5
57	Vurusaner, B., et al.	2012	P53, FOXO	2.5	2.5	0.0	1.0	6.0
58	Wagner, E. F. and Nebreda, A. R.	2009	MAPK	2.0	3.0	1.0	1.0	7.0
59	Wallace, D. C.	2012	Mitochondria	2.5	2.5	0.0	1.5	6.5
60	Watroba, M., et al.	2012	FOXO	2.5	1.0	1.0	1.5	6.0
61	Xiang, M., et al.	2014	Nrf2	2.0	2.5	1.0	0.5	6.0
62	Yang, Q. and Lee, J. D.	2011	MAPK	0.5	3.0	1.5	1.0	6.0
63	Yousefi, B., et al.	2014	PI3K	1.5	2.5	1.0	1.0	6.0
64	Yu, H., et al.	2009	STAT	0.5	3.0	2.0	1.5	7.0
65	Zhao, J., et al.	2015	HIF-2	1.5	2.5	1.0	1.0	6.0

Abbreviations: AP-1, Activator protein 1; APE1/Ref-1, Apurinic/aprimidinic endonuclease 1/Redox effector factor-1; COX, Cyclooxygenase; FOXO, Forkhead box O; HIF, Hypoxia-inducible factors; LOX, Lipoxygenase; MAPK, Mitogen-activated protein kinase; NF-κB, Nuclear factor-κB; NOS, Nitric oxide synthase; NOX, NADPH oxidase; Nrf2, Nuclear factor E2-related factor 2; P53, Tumor protein p53; PI3K, Phosphoinositide 3-kinase; PKC, Protein kinase C; PTK, Protein tyrosine kinase; PTP, protein tyrosine phosphatase; ROS, Reactive oxygen species; Smad, Small mothers against decapentaplegic; STAT, Signal transducer and activator of transcription.