Document details

Back to results | 1 of 1

Export Download Print E-mail Save to PDF Add to List More...

Full Text View at Publisher

Molecular Immunology
Volume 63, Issue 2, February 01, 2015, Pages 394-405

[redacted]ibose) polymerase-1 inhibitor in carrageenan-induced lung inflammation in mice (Article)

Ahmad, S.F.[a], Zoheir, K.M.A.[a,b], Ansari, M.A.[a], Korashy, H.M.[a], Bakheet, S.A.[a], Ashour, A.E.[a], Al-Shabanah, O.A.[a], Al-harbi, M.M.[a], Attia, S.M.[a,c]

[a]Department of Pharmacology and Toxicology, College of Pharmacy, King Saud University, Riyadh, Saudi Arabia
[b]Department of Cell Biology, National Research Centre, Cairo, Egypt
[c]Department of Pharmacology and Toxicology, College of Pharmacy, Al-Azhar University, Cairo, Egypt

Abstract

View references (62)

Increasing indication is unveiling a role for poly(ADP-ribose) polymerase (PARP)-1 in the regulation of inflammatory/immune responses. The aim of the present study was to determine the potential anti-inflammatory effects of PARP-1 inhibitor 5-aminoisoquinolinone (5-AIQ) to explore the role of PARP-1 inhibitor in a mouse model of carrageenan-induced lung inflammation. A single dose of 5-AIQ (1.5mg/kg) was administered intraperitoneally (i.p.) 1h before λ-carrageenan (Cg) administration. We assessed the effects of 5-AIQ treatment on $CD25^+$, $GITR^+$, $CD25^+GITR^+$, $IL\text{-}17^+$ and $Foxp3^+$ cells which were investigated using flowcytometry in pleural exudates and heparinized blood. We also evaluated mRNA expressions of IL-6, TNF-α, IL-1β, IL-10, CD11a, l-selectin (CD62L), ICAM-1, MCP-1, iNOS and COX-2 in the lung tissue. We further examined the effects of 5-AIQ on the key mediators of inflammation, namely COX-2, STAT-3, NF-kB p65, PARP-1, IkB-α and IL-4 protein expression in the lung tissue using western blotting. The results illustrated that the numbers of T cell subsets, $IL\text{-}17^+$ cytokine levels were markedly increased and $Foxp3^+$ production decreased in the Cg group. Furthermore, Cg-induced up-regulation of adhesion molecules, pro-inflammatory mediators and chemokine expressions. Western blot analysis revealed an increased protein expressions of COX-2, STAT-3 NF-kB p65 and PARP-1 and decreased IkB-α and IL-4 in the Cg group. PARP-1 inhibitor via 5-AIQ treatment reverses the action significantly of all the previously mentioned effects. Moreover, histological examinations revealed anti-inflammatory effects of 5-AIQ, whereas Cg-group aggravated Cg-induced inflammation. Present findings demonstrate the potent anti-inflammatory action of the PARP-1 inhibitor in acute lung injury induced by carrageenan. © 2014 Elsevier Ltd.

SciVal Topic Prominence

Topic: Poly(ADP-ribose) Polymerases | Poly Adenosine Diphosphate Ribose | polymerase-1 PARP-1

Prominence percentile: 98.254

Author keywords

Carrageenan | Inflammatory mediators | Lung tissue | PARP-1 inhibitor | Pleural exudate

Indexed keywords

Metrics

View all metrics

15 Citations in Scopus
84th percentile

1.28 Field-Weighted Citation Impact

PlumX Metrics
Usage, Captures, Mentions, Social Media and Citations beyond Scopus.

Cited by 15 documents

Resveratrol Improves Neuroimmune Dysregulation Through the Inhibition of Neuronal Toll-Like Receptors and COX-2 Signaling in BTBR T^+ $Itpr3^{tf}$/J Mice
Ahmad, S.F. , Ansari, M.A. , Nadeem, A.
(2018) NeuroMolecular Medicine

The clinically used PARP inhibitor olaparib improves organ function, suppresses inflammatory responses and accelerates wound healing in a murine model of third-degree burn injury
Ahmad, A. , Olah, G. , Herndon, D.N.
(2018) British Journal of Pharmacology

Adenosine A2A receptor signaling affects IL-21/IL-22 cytokines and GATA3/T-bet transcription factor expression in $CD4^+$ T cells from a BTBR T^+ Itpr3tf/J mouse model of autism
Ahmad, S.F. , Ansari, M.A. , Nadeem, A.
(2017) Journal of Neuroimmunology

View all 15 citing documents

Inform me when this document is cited in Scopus:

Set citation alert

Set citation feed

Related documents

EMTREE drug terms:

5 aminoisoquinolinone | antiinflammatory agent | carrageenan | cyclooxygenase 2 | I kappa B alpha | inducible nitric oxide synthase | intercellular adhesion molecule 1 | interleukin 10 | interleukin 17 | interleukin 1beta | interleukin 4 | interleukin 6 | L selectin | lymphocyte function associated antigen 1 | malonaldehyde | messenger RNA | monocyte chemotactic protein 1 | nicotinamide adenine dinucleotide adenosine diphosphate ribosyltransferase 1 | nicotinamide adenine dinucleotide adenosine diphosphate ribosyltransferase 1 inhibitor | STAT3 protein | transcription factor FOXP3 | tumor necrosis factor alpha | unclassified drug | 5-aminoisoquinolinone | autacoid | cell adhesion molecule | cyclooxygenase 2 | cytokine | enzyme inhibitor | forkhead transcription factor | Foxp3 protein, mouse | glucocorticoid induced tumor necrosis factor receptor | inducible nitric oxide synthase | interleukin 17 | interleukin 2 receptor alpha | isoquinoline derivative | messenger RNA | nicotinamide adenine dinucleotide adenosine diphosphate ribosyltransferase | Tnfrsf18 protein, mouse

EMTREE medical terms:

adult | animal experiment | animal model | animal tissue | antiinflammatory activity | Article | CD25+ T lymphocyte | concentration (parameters) | controlled study | cytokine production | female | flow cytometry | gene expression | lipid peroxidation | lung parenchyma | lymphocyte count | mouse | mouse model | nonhuman | pleura fluid | pleurisy | pneumonia | protein expression | single drug dose | T lymphocyte subpopulation | upregulation | Western blotting | animal | antagonists and inhibitors | Bagg albino mouse | biosynthesis | drug effects | enzymology | gene expression regulation | genetics | metabolism | pathology | pneumonia | regulatory T lymphocyte

Species Index:

Mus

MeSH:

Animals | Carrageenan | Cell Adhesion Molecules | Cyclooxygenase 2 | Cytokines | Enzyme Inhibitors | Female | Forkhead Transcription Factors | Gene Expression Regulation | Glucocorticoid-Induced TNFR-Related Protein | Inflammation Mediators | Interleukin-17 | Interleukin-2 Receptor alpha Subunit | Isoquinolines | Lipid Peroxidation | Mice, Inbred BALB C | Nitric Oxide Synthase Type II | Pneumonia | Poly(ADP-ribose) Polymerases | RNA, Messenger | T-Lymphocytes, Regulatory

Chemicals and CAS Registry Numbers:

carrageenan, 9000-07-1, 9049-05-2, 9061-82-9, 9064-57-7; I kappa B alpha, 151217-48-0; inducible nitric oxide synthase, 501433-35-8; intercellular adhesion molecule 1, 126547-89-5; L selectin, 126880-86-2; malonaldehyde, 542-78-9; nicotinamide adenine dinucleotide adenosine diphosphate ribosyltransferase, 58319-92-9;

5-aminoisoquinolinone; Carrageenan; Cell Adhesion Molecules; Cyclooxygenase 2; Cytokines; Enzyme Inhibitors; Forkhead Transcription Factors; Foxp3 protein, mouse; Glucocorticoid-Induced TNFR-Related Protein; Inflammation Mediators; Interleukin-17; Interleukin-2 Receptor alpha Subunit; Isoquinolines; Nitric Oxide Synthase Type II; Poly(ADP-ribose) Polymerases; RNA, Messenger; Tnfrsf18 protein, mouse

Manufacturers:

Drug manufacturer:

matrix scientific, United States

Funding details

Funding sponsor	Funding number	Acronym
Deanship of Scientific Research, King Faisal University	RGP-VPP-120	DSR, KFU

Funding text

The authors extend their appreciation to the Deanship of Scientific Research at King Saud University for funding the work through the research group project No. RGP-VPP-120.

ISSN: 01615890
CODEN: IMCHA
Source Type: Journal
Original language: English
DOI: 10.1016/j.molimm.2014.09.009
PubMed ID: 25304310
Document Type: Article
Publisher: Elsevier Ltd

References (62)

View in search results format >

All | Export | Print | E-mail | Save to PDF | Create bibliography

1 Ahmad, S.F., Zoheir, K.M.A., Abdel-Hamied, H.E., Ashour, A.E., Bakheet, S.A., Attia, S.M., Abd-Allah, A.R.A.
Grape seed proanthocyanidin extract has potent anti-arthritic effects on collagen-induced arthritis by modifying the T cell balance

(2013) *International Immunopharmacology*, 17 (1), pp. 79-87. Cited 26 times.
www.elsevier.com/locate/intimp
doi: 10.1016/j.intimp.2013.05.026

View at Publisher

2 Ansari, M.A., Maayah, Z.H., Bakheet, S.A., El-Kadi, A.O., Korashy, H.M.
The role of aryl hydrocarbon receptor signaling pathway in cardiotoxicity of acute lead intoxication in vivo and in vitro rat model

(2013) *Toxicology*, 306, pp. 40-49. Cited 32 times.
doi: 10.1016/j.tox.2013.01.024

View at Publisher

3 Ahmad, S.F., Zoheir, K.M.A., Bakheet, S.A., Ashour, A.E., Attia, S.M.
Poly(ADP-ribose) polymerase-1 inhibitor modulates T regulatory and IL-17 cells in the prevention of adjuvant induced arthritis in mice model

(2014) *Cytokine*, 68 (2), pp. 76-85. Cited 27 times.
http://www.elsevier.com/inca/publications/store/6/2/2/8/1/5/index.htt
doi: 10.1016/j.cyto.2014.04.006

View at Publisher

4 Ahmad, S.F., Zoheir, K.M.A., Abdel-Hamied, H.E., Alrashidi, I., Attia, S.M., Bakheet, S.A., Ashour, A.E., (...), Abd-Allah, A.R.A.
Role of a histamine 4 receptor as an anti-inflammatory target in carrageenan-induced pleurisy in mice (Open Access)

(2014) *Immunology*, 142 (3), pp. 374-383. Cited 14 times.
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1365-2567/issues
doi: 10.1111/imm.12257

View at Publisher

5 Ahmad, S.F., Zoheir, K.M.A., Abdel-Hamied, H.E., Attia, S.M., Bakheet, S.A., Ashour, A.E., Abd-Allah, A.R.A.
Grape seed proanthocyanidin extract protects against carrageenan-induced lung inflammation in mice through reduction of pro-inflammatory markers and chemokine expressions

(2014) *Inflammation*, 37 (2), pp. 500-511. Cited 19 times.
www.wkap.nl/journalhome.htm/0360-3997
doi: 10.1007/s10753-013-9764-2

View at Publisher

6 Ahmad, S.F., Zoheir, K.M.A., Abdel-Hamied, H.E., Ashour, A.E., Bakheet, S.A., Attia, S.M., Abd-Allah, A.R.A.
Amelioration of autoimmune arthritis by naringin through modulation of T regulatory cells and Th1/Th2 cytokines

(2014) *Cellular Immunology*, 287 (2), pp. 112-120. Cited 26 times.
doi: 10.1016/j.cellimm.2014.01.001

View at Publisher

7 Ahmad, S.F., Attia, S.M., Zoheir, K.M.A., Ashour, A.E., Bakheet, S.A.

Attenuation of the progression of adjuvant-induced arthritis by 3-aminobenzamide treatment

(2014) *International Immunopharmacology*, 19 (1), pp. 52-59. Cited 13 times.
doi: 10.1016/j.intimp.2014.01.005

View at Publisher

8 Ballestas, M.E., Benveniste, E.N.

Interleukin 1-β- and tumor necrosis factor-α-mediated regulation of ICAM-1 gene expression in astrocytes requires protein kinase C activity

(1995) *Glia*, 14 (4), pp. 267-278. Cited 57 times.
doi: 10.1002/glia.440140404

View at Publisher

9 Barakat, A., Szick-Miranda, K., Chang, I.-F., Guyot, R., Blanc, G., Cooke, R., Delseny, M., (...), Bailey-Serres, J.

The organization of cytoplasmic ribosomal protein genes in the arabidopsis genome (Open Access)

(2001) *Plant Physiology*, 127 (2), pp. 398-415. Cited 189 times.
http://www.plantphysiol.org/
doi: 10.1104/pp.010265

View at Publisher

10 Borish, L.C., Steinke, J.W.

2. Cytokines and chemokines

(2003) *Journal of Allergy and Clinical Immunology*, 111 (2 SUPPL. 2), pp. S460-S475. Cited 463 times.
http://www.elsevier.com/inca/publications/store/6/2/3/3/6/8/index.htt
doi: 10.1067/mai.2003.108

View at Publisher

11 Cornelius, L.A., Taylor, J.T., Degitz, K., Li, L.-J., Lawley, T.J., Wright Caughman, S.

A 5′ portion of the ICAM-1 gene confers tissue-specific differential expression levels and cytokine responsiveness (Open Access)

(1993) *Journal of Investigative Dermatology*, 100 (6), pp. 753-758. Cited 27 times.
doi: 10.1111/1523-1747.ep12476300

View at Publisher

12 Cuzzocrea, S., Zingarelli, B., Hake, P., Salzman, A.L., Szabo, C.

Antiinflammatory effects of mercaptoethylguanidine, a combined inhibitor of nitric oxide synthase and peroxynitrite scavenger, in carrageenan-induced models of inflammation

(1998) *Free Radical Biology and Medicine*, 24 (3), pp. 450-459. Cited 201 times.
doi: 10.1016/S0891-5849(97)00280-3

View at Publisher

13 Chen, Y.-C., Yang, L.-L., Lee, T.J.-F.

Oroxylin A inhibition of lipopolysaccharide-induced iNOS and COX-2 gene expression via suppression of nuclear factor-κB activation

(2000) *Biochemical Pharmacology*, 59 (11), pp. 1445-1457. Cited 261 times.
doi: 10.1016/S0006-2952(00)00255-0

View at Publisher

14 Christopherson II, K., Hromas, R.
Chemokine regulation of normal and pathologic immune responses (Open Access)

(2001) *Stem Cells*, 19 (5), pp. 388-396. Cited 86 times.
http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1549-4918
doi: 10.1634/stemcells.19-5-388

View at Publisher

15 Cuzzocrea, S., Mazzon, E., Dugo, L., Serraino, I., Di Paola, R., Genovese, T., De Sarro, A., (...), Caputi, A.P.
Absence of endogenous interleukin-10 enhances the evolution of acute lung injury

(2002) *European Cytokine Network*, 13 (3), pp. 285-297. Cited 25 times.

16 Cuzzocrea, S., Mazzon, E., Di Paola, R., Genovese, T., Patel, N.S.A., Muià, C., Threadgill, M.D., (...), Thiemermann, C.
5-Aminoisoquinolinone reduces colon injury by experimental colitis

(2004) *Naunyn-Schmiedeberg's Archives of Pharmacology*, 370 (6), pp. 464-473. Cited 20 times.
doi: 10.1007/s00210-004-1002-x

View at Publisher

17 D'Amours, D., Desnoyers, S., D'Silva, I., Poirier, G.G.
Poly(ADP-ribosyl)ation reactions in the regulation of nuclear functions (Open Access)

(1999) *Biochemical Journal*, 342 (2), pp. 249-268. Cited 1324 times.
doi: 10.1042/0264-6021:3420249

View at Publisher

18 Esposito, E., Cuzzocrea, S.
Superoxide, NO, peroxynitrite and PARP in circulatory shock and inflammation

(2009) *Frontiers in Bioscience*, 14 (1), pp. 263-296. Cited 35 times.
doi: 10.2741/3244

View at Publisher

19 Farombi, E.O., Shrotriya, S., Surh, Y.-J.
Kolaviron inhibits dimethyl nitrosamine-induced liver injury by suppressing COX-2 and iNOS expression via NF-κB and AP-1

(2009) *Life Sciences*, 84 (5-6), pp. 149-155. Cited 81 times.
doi: 10.1016/j.lfs.2008.11.012

View at Publisher

20 Gao, H., Gou, R.-F., Speyer, C.L., Reuben, J., Neff, T.A., Hoesel, L.M., Riedemann, N.C., (...), Ward, P.A.
Stat3 activation in acute lung injury (Open Access)

(2004) *Journal of Immunology*, 172 (12), pp. 7703-7712. Cited 72 times.
http://www.jimmunol.org/
doi: 10.4049/jimmunol.172.12.7703

View at Publisher

21 Gonzalez-Rey, E., Martínez-Romero, R., O'Valle, F., Aguilar-Quesada, R., Conde, C., Delgado, M., Oliver, F.J.
Therapeutic effect of a poly(ADP-ribose) polymerase-1 inhibitor on experimental arthritis by downregulating inflammation and Th1 response (Open Access)

(2007) *PLoS ONE*, 2 (10), art. no. e1071. Cited 28 times.
http://www.plosone.org/article/fetchObjectAttachment.action?uri=info%3Adoi%2F10.1371%2Fjournal.pone.0001071&representation=PDF
doi: 10.1371/journal.pone.0001071

View at Publisher

22 Hurst, S.D., Muchamuel, T., Gorman, D.M., Gilbert, J.M., Clifford, T., Kwan, S., Menon, S., (...), Coffman, R.L.

New IL-17 family members promote Th1 or Th2 responses in the lung: In vivo function of the novel cytokine IL-25 (Open Access)

(2002) *Journal of Immunology*, 169 (1), pp. 443-453. Cited 455 times.
http://www.jimmunol.org/
doi: 10.4049/jimmunol.169.1.443

View at Publisher

23 Hori, S., Nomura, T., Sakaguchi, S.

Control of regulatory T cell development by the transcription factor Foxp3

(2003) *Science*, 299 (5609), pp. 1057-1061. Cited 5508 times.
doi: 10.1126/science.1079490

View at Publisher

24 Hakmé, A., Wong, H.-K., Dantzer, F., Schreiber, V.

The expanding field of poly(ADP-ribosyl)ation reactions. 'Protein modifications: Beyond the usual suspects' review series (Open Access)

(2008) *EMBO Reports*, 9 (11), pp. 1094-1100. Cited 110 times.
doi: 10.1038/embor.2008.191

View at Publisher

25 Hendryk, S., Czuba, Z.P., Jedrzejowska-Szypulka, H., Szliszka, E., Phillips, V.A., Threadgill, M.D., Krol, W.

Influence of 5-aminoisoquinolin-1-one (5-AIQ) on neutrophil chemiluminescence in rats with transient and prolonged focal cerebral ischaemia and after reperfusion

(2008) *Journal of Physiology and Pharmacology*, 59 (4), pp. 811-822. Cited 9 times.
http://www.jpp.krakow.pl/journal/archive/1208/pdf/811_1208_article.pdf

View at Publisher

26 Hesslinger, C., Strub, A., Boer, R., Ulrich, W.-R., Lehner, M.D., Braun, C.

Inhibition of inducible nitric oxide synthase in respiratory diseases

(2009) *Biochemical Society Transactions*, 37 (4), pp. 886-891. Cited 79 times.
http://www.biochemsoctrans.org/bst/037/0886/0370886.pdf
doi: 10.1042/BST0370886

View at Publisher

27 Impellizzeri, D., Esposito, E., Mazzon, E., Paterniti, I., Di Paola, R., Bramanti, P., Cuzzocrea, S.

Effect of apocynin, a NADPH oxidase inhibitor, on acute lung inflammation

(2011) *Biochemical Pharmacology*, 81 (5), pp. 636-648. Cited 52 times.
doi: 10.1016/j.bcp.2010.12.006

View at Publisher

28 Karin, M., Delhase, M.

JNK or IKK, AP-1 or NF-κB, which are the targets for MEK kinase 1 action?

(1998) *Proceedings of the National Academy of Sciences of the United States of America*, 95 (16), pp. 9067-9069. Cited 195 times.
doi: 10.1073/pnas.95.16.9067

View at Publisher

29 Katz, Y., Nadiv, O., Beer, Y.

Interleukin-17 Enhances Tumor Necrosis Factor α-Induced Synthesis of Interleukins 1, 6, and 8 in Skin and Synovial Fibroblasts: A Possible Role as a "Fine-Tuning Cytokine" in Inflammation Processes (Open Access)

(2001) *Arthritis and Rheumatism*, 44 (9), pp. 2176-2184. Cited 174 times.
doi: 10.1002/1529-0131(200109)44:9<2176::AID-ART371>3.0.CO;2-4

View at Publisher

30 Ko, K., Yamazaki, S., Nakamura, K., Nishioka, T., Hirota, K., Yamaguchi, T., Shimizu, J., (...), Sakaguchi, S.

Treatment of advanced tumors with agonistic anti-GITR mAb and its effects on tumor-infiltrating Foxp3^{+}CD25^{+}CD4^{+} regulatory T cells (Open Access)

(2005) *Journal of Experimental Medicine*, 202 (7), pp. 885-891. Cited 373 times.
http://www.jem.org/cgi/reprint/202/7/885
doi: 10.1084/jem.20050940

View at Publisher

31 Kirchberger, S., Vetr, H., Majdic, O., Stockinger, H., Stöckl, J.

Engagement of ICAM-1 by major group rhinoviruses activates the LFA-1/ICAM-3 cell adhesion pathway in mononuclear phagocytes

(2006) *Immunobiology*, 211 (6-8), pp. 537-547. Cited 4 times.
www.urbanfischer.de/journals/immunobiol/i_biol.htm
doi: 10.1016/j.imbio.2006.06.008

View at Publisher

32 Kraus, W.L.

Transcriptional control by PARP-1: chromatin modulation, enhancer-binding, coregulation, and insulation

(2008) *Current Opinion in Cell Biology*, 20 (3), pp. 294-302. Cited 272 times.
doi: 10.1016/j.ceb.2008.03.006

View at Publisher

33 Kane, A., Deenick, E.K., Ma, C.S., Cook, M.C., Uzel, G., Tangye, S.G.

STAT3 is a central regulator of lymphocyte differentiation and function

(2014) *Current Opinion in Immunology*, 28 (1), pp. 49-57. Cited 37 times.
doi: 10.1016/j.coi.2014.01.015

View at Publisher

34 Lewinsohn, D.M., Bargatze, R.F., Butcher, E.C.

Leukocyte-endothelial cell recognition: Evidence of a common molecular mechanism shared by neutrophils, lymphocytes, and other leukocytes

(1987) *Journal of Immunology*, 138 (12), pp. 4313-4321. Cited 296 times.

View at Publisher

35 Levy, D.E., Lee, C.-K.

What does Stat3 do? (Open Access)

(2002) *Journal of Clinical Investigation*, 109 (9), pp. 1143-1148. Cited 592 times.
http://www.jci.org
doi: 10.1172/JCI0215650

View at Publisher

36 Lin, Q.-Y., Jin, L.-J., Cao, Z.-H., Li, H.-Q., Xu, Y.-P.
Protective effect of Acanthopanax senticosus extract against endotoxic shock in mice

(2008) *Journal of Ethnopharmacology*, 118 (3), pp. 495-502. Cited 19 times.
doi: 10.1016/j.jep.2008.05.018

View at Publisher

37 May, C., Williams, O., Milner, A.D., Peacock, J., Rafferty, G.F., Hannam, S., Greenough, A.
Relation of exhaled nitric oxide levels to development of bronchopulmonary dysplasia

(2009) *Archives of Disease in Childhood: Fetal and Neonatal Edition*, 94 (3), pp. F205-F209. Cited 17 times.
http://fn.bmj.com/cgi/reprint/94/3/F205
doi: 10.1136/adc.2008.146589

View at Publisher

38 Moon, D.-O., Kim, M.-O., Kang, S.-H., Choi, Y.H., Kim, G.-Y.
Sulforaphane suppresses TNF-α-mediated activation of NF-κB and induces apoptosis through activation of reactive oxygen species-dependent caspase-3

(2009) *Cancer Letters*, 274 (1), pp. 132-142. Cited 86 times.
doi: 10.1016/j.canlet.2008.09.013

View at Publisher

39 Nishibori, M., Takahashi, H.K., Mori, S.
The regulation of ICAM-1 and LFA-1 interaction by autocoids and statins: A novel strategy for controlling inflammation and immune responses (Open Access)

(2003) *Journal Pharmacological Sciences*, 92 (1), pp. 7-12. Cited 31 times.
http://www.jstage.jst.go.jp/browse/
doi: 10.1254/jphs.92.7

View at Publisher

40 Nocentini, G., Riccardi, C.
GITR: A multifaceted regulator of immunity belonging to the tumor necrosis factor receptor superfamily (Open Access)

(2005) *European Journal of Immunology*, 35 (4), pp. 1016-1022. Cited 143 times.
doi: 10.1002/eji.200425818

View at Publisher

41 Nicolescu, A.C., Holt, A., Kandasamy, A.D., Pacher, P., Schulz, R.
Inhibition of matrix metalloproteinase-2 by PARP inhibitors

(2009) *Biochemical and Biophysical Research Communications*, 387 (4), pp. 646-650. Cited 33 times.
doi: 10.1016/j.bbrc.2009.07.080

View at Publisher

42 Olabisi, O.A., Soto-Nieves, N., Nieves, E., Yang, T.T.C., Yang, X., Yu, R.Y.L., Hee, Y.S., (...), Chow, C.-W.
Regulation of transcription factor NFAT by ADP-ribosylation (Open Access)

(2008) *Molecular and Cellular Biology*, 28 (9), pp. 2860-2871. Cited 54 times.
doi: 10.1128/MCB.01746-07

View at Publisher

43 Oliveira, S.H.P., Canetti, C., Ribeiro, R.A., Cunha, F.Q.
Neutrophil migration induced by IL-1β depends upon LTB_4 released by macrophages and upon TNF-α and IL-1β released by mast cells

(2008) *Inflammation*, 31 (1), pp. 36-46. Cited 51 times.
doi: 10.1007/s10753-007-9047-x

View at Publisher

44 Pfitzner, E., Kliem, S., Baus, D., Litterst, C.M.
The role of STATs in inflammation and inflammatory diseases

(2004) *Current Pharmaceutical Design*, 10 (23), pp. 2839-2850. Cited 101 times.
doi: 10.2174/1381612043383638

View at Publisher

45 Di Paola, R., Mazzon, E., Muià, C., Terrana, D., Greco, S., Britti, D., Santori, D., (...), Cuzzocrea, S.
5-Aminoisoquinolin-1(2H)-one, a water-soluble poly (ADP-ribose) polymerase (PARP) inhibitor reduces the evolution of experimental periodontitis in rats

(2007) *Journal of Clinical Periodontology*, 34 (2), pp. 95-102. Cited 16 times.
doi: 10.1111/j.1600-051X.2006.01016.x

View at Publisher

46 Pacher, P., Szabó, C.
Role of poly(ADP-ribose) polymerase 1 (PARP-1) in cardiovascular diseases: The therapeutic potential of PARP inhibitors (Open Access)

(2007) *Cardiovascular Drug Reviews*, 25 (3), pp. 235-260. Cited 184 times.
doi: 10.1111/j.1527-3466.2007.00018.x

View at Publisher

47 Paul, E.L., Lunardelli, A., Caberlon, E., De Oliveira, C.B., Santos, R.C.V., Biolchi, V., Bastos, C.M.A., (...), De Oliveira, J.R.
Anti-inflammatory and immunomodulatory effects of baccharis trimera aqueous extract on induced pleurisy in rats and lymphoproliferation in vitro

(2009) *Inflammation*, 32 (6), pp. 419-425. Cited 43 times.
doi: 10.1007/s10753-009-9151-1

View at Publisher

48 Renner, E.D., Rylaarsdam, S., Aňover-Sombke, S., Rack, A.L., Reichenbach, J., Carey, J.C., Zhu, Q., (...), Ochs, H.D.
Novel signal transducer and activator of transcription 3 (STAT3) mutations, reduced T_H17 cell numbers, and variably defective STAT3 phosphorylation in hyper-IgE syndrome

(2008) *Journal of Allergy and Clinical Immunology*, 122 (1), pp. 181-187. Cited 192 times.
doi: 10.1016/j.jaci.2008.04.037

View at Publisher

49 Sambrook, J., Fritsch, E.F., Maniatatis, T., Ford, N.
(1989) *Molecular Cloning. A Laboratory Manual*. Cited 59937 times.
Cold Spring Harbour Laboratory Press, Plainview, NY, (Eds.)

50 Seder, R.A., Paul, W.E., Davis, M.M., Fazekas de St. Groth, B.
The presence of interleukln 4 during in vitro priming determines the lymphoklne-producing potential of CD4+ T cells from T cell receptor transgenic mice (Open Access)

(1992) *Journal of Experimental Medicine*, 176 (4), pp. 1091-1098. Cited 884 times.
doi: 10.1084/jem.176.4.1091

View at Publisher

51 Sakaguchi, S., Sakaguchi, N., Asano, M., Itoh, M., Toda, M.
Immunologic self-tolerance maintained by activated T cells expressing IL-2 receptor α-chains (CD25): Breakdown of a single mechanism of self-tolerance causes various autoimmune diseases

(1995) *Journal of Immunology*, 155 (3), pp. 1151-1164. Cited 4406 times.

View at Publisher

52 Shall, S., de Murcia, G.
Poly(ADP-ribose) polymerase-1: What have we learned from the deficient mouse model?

(2000) *Mutation Research - DNA Repair*, 460 (1), pp. 1-15. Cited 421 times.
doi: 10.1016/S0921-8777(00)00016-1

View at Publisher

53 Szabó, G., Bährle, S., Stumpf, N., Sonnenberg, K., Szabó, E., Pacher, P., Csont, T., (...), Szabó, C.
Poly(ADP-ribose) polymerase inhibition reduces reperfusion injury after heart transplantation

(2002) *Circulation Research*, 90 (1), pp. 100-106. Cited 139 times.
doi: 10.1161/hh0102.102657

View at Publisher

54 Szabo, C.
Poly(ADP-ribose) polymerase activation by reactive nitrogen species-relevance for the pathogenesis of inflammation
(2006) *Nitric Oxide*, 141, pp. 69-79.

55 Schymeinsky, J., Mócsai, A., Walzog, B.
Neutrophil activation via β2 integrins (CD11/CD18): Molecular mechanisms and clinical implications (Open Access)

(2007) *Thrombosis and Haemostasis*, 98 (2), pp. 262-273. Cited 70 times.
doi: 10.1160/TH07-02-0156

View at Publisher

56 Saenz, L., Lozano, J.J., Valdor, R., Baroja-Mazo, A., Ramirez, P., Parrilla, P., Aparicio, P., (...), Yélamos, J.
Transcriptional regulation by Poly(ADP-ribose) polymerase-1 during T cell activation (Open Access)

(2008) *BMC Genomics*, 9, art. no. 171. Cited 27 times.
doi: 10.1186/1471-2164-9-171

View at Publisher

57 Seevaratnam, R., Patel, B.P., Hamadeh, M.J.
Comparison of total protein concentration in skeletal muscle as measured by the Bradford and Lowry assays

(2009) *Journal of Biochemistry*, 145 (6), pp. 791-797. Cited 34 times.
doi: 10.1093/jb/mvp037

View at Publisher

58 Sun, S.-X., Li, Y.-M., Fang, W.-R., Cheng, P., Liu, L., Li, F.
Effect and mechanism of AR-6 in experimental rheumatoid arthritis

(2010) *Clinical and Experimental Medicine*, 10 (2), pp. 113-121. Cited 25 times.
doi: 10.1007/s10238-009-0075-8

View at Publisher

59 Tamura, D.Y., Moore, E.E., Johnson, J.L., Zallen, G., Aiboshi, J., Silliman, C.C., Cioffi, W.G., (...), Simms, H.H.
p38 Mitogen-activated protein kinase inhibition attenuates intercellular adhesion molecule-1 up-regulation on human pulmonary microvascular endothelial cells

(1998) *Surgery*, 124 (2), pp. 403-408. Cited 71 times.
http://www.elsevier.com/inca/publications/store/6/2/3/1/9/5/index.htt
doi: 10.1016/S0039-6060(98)70147-3

View at Publisher

60 Virág, L., Szabó, C.
The therapeutic potential of poly(ADP-ribose) polymerase inhibitors

(2002) *Pharmacological Reviews*, 54 (3), pp. 375-429. Cited 1068 times.
doi: 10.1124/pr.54.3.375

View at Publisher

61 Zingarelli, B., Salzman, A.L., Szabó, C.
Genetic disruption of poly (ADP-ribose) synthetase inhibits the expression of P-selectin and intercellular adhesion molecule-1 in myocardial ischemia/reperfusion injury
(Open Access)

(1998) *Circulation Research*, 83 (1), pp. 85-94. Cited 288 times.
http://circres.ahajournals.org
doi: 10.1161/01.RES.83.1.85

View at Publisher

62 Zhou, H.Y., Shin, E.M., Guo, L.Y., Youn, U.J., Bae, K., Kang, S.S., Zou, L.B., (...), Kim, Y.S.
Anti-inflammatory activity of 4-methoxyhonokiol is a function of the inhibition of iNOS and COX-2 expression in RAW 264.7 macrophages via NF-κB, JNK and p38 MAPK inactivation

(2008) *European Journal of Pharmacology*, 586 (1-3), pp. 340-349. Cited 107 times.
doi: 10.1016/j.ejphar.2008.02.044

View at Publisher

Ahmad, S.F.; Department of Pharmacology and Toxicology, College of Pharmacy, King Saud University, Riyadh, Saudi Arabia

Back to results | 1 of 1

Top of page