

Name of Journal: *World Journal of Cardiology*

Manuscript NO: 54361

Manuscript Type: REVIEW

MicroRNA sequences modulating inflammation and lipid accumulation in macrophage ‘foam’ cells: Implications for atherosclerosis

Lightbody RJ *et al.* MicroRNA involved in foam cell formation

Richard James Lightbody, Janice Marie Walsh Taylor, Yvonne Dempsie, Annette Graham

Abstract

Accumulation of macrophage ‘foam’ cells, laden with cholesterol and cholesteryl ester, within the intima of large arteries, is a hallmark of early ‘fatty streak’ lesions which can progress to complex, multicellular atheromatous plaques, involving lipoproteins from the bloodstream and cells of the innate and adaptive immune response. Sterol accumulation triggers induction of genes encoding proteins

Match Overview

1	Internet 96 words crawled on 14-Nov-2017 hal.archives-ouvertes.fr	1%
2	Internet 51 words crawled on 10-Nov-2015 www.ncbi.nlm.nih.gov	1%
3	Crossref 22 words Annette Graham. "Mitochondrial function and regulation ... macrophage sterol metabolism and inflammatory respons	<1%
4	Internet 21 words crawled on 26-Apr-2020 www.jlr.org	<1%
5	Crossref 21 words Lee, Stephen D., and Peter Tontonoz. "Liver X receptors ... the intersection of lipid metabolism and atherogenesis", At	<1%
6	Internet 19 words crawled on 01-Apr-2015 saweb2.sabiosciences.com	<1%
7	Internet 18 words crawled on 17-Dec-2018 erj.ersjournals.com	<1%
8	Internet 16 words crawled on 02-Feb-2015 edoc.hu-berlin.de	<1%
9	Internet 16 words crawled on 01-Oct-2013 vamsas.ac.uk	<1%
10	Internet 16 words hdl.handle.net	<1%
11	Internet 15 words crawled on 10-Apr-2018 www.nrcresearchpress.com	<1%
12	Internet 15 words	<1%



MicroRNA sequences modulating inflammation and lipi



Sign in

ALL IMAGES VIDEOS

Add the Give with Bing extension

43,100 Results Any time

Insulin promotes macrophage foam cell formation: Potential ...

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3407326>

Excessive lipid accumulation by macrophages plays a crucial role in the initiation and progression of atherosclerosis. Lipid laden macrophage foam cells accumulate in atheromatous plaque and promote inflammation by secreting cytokines that recruit other immune cells to the arterial intima.

Cited by: 25 Author: Young M Park, Young M Park, Sangeeta R...
Publish Year: 2012

MicroRNA-33-dependent regulation of macrophage metabolism ...

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4665799>

Dec 01, 2015 · Macrophages are critical effectors of inflammation and innate immunity; they also regulate adaptive immunity by recruiting and/or activating other immune cells at inflammatory foci (1). In addition, macrophages play important roles in tissue homeostasis and resolution of inflammation (2).

Cited by: 185 Author: Mireille Ouimet, Hasini N. Ediriweera, U. Ma...
Publish Year: 2015

Inhibition of microRNA-17-5p reduces the inflammation and ...

<https://www.sciencedirect.com/science/article/pii/S1347861318302172>

Furthermore, cellular cholesterol accumulates in lipid-engorged macrophage foam cells, leading to lipid deposition at the core of atherosclerosis. 12 Thus, inhibiting the lipid accumulation is an important therapeutic strategy for AS. Cholesterol efflux is the main pathway for reducing lipid accumulation in macrophages.

Cited by: 1 Author: Lili Tan, Limin Liu, Zhenyu Jiang, Xiaojiao H...
Publish Year: 2019

MicroRNA Regulation of Atherosclerosis | Circulation Research

<https://www.ahajournals.org/doi/full/10.1161/circresaha.115.306300>

On differentiation into macrophages, these cells play central roles in the pathophysiology of atherosclerosis by maintaining lipid homeostasis in the vessel wall and secreting inflammation-promoting mediators that act on both immune and nonimmune cell types in the artery wall. 91 Lipoprotein uptake by macrophages in the nascent plaque results in the formation of lipid-laden macrophage foam cells ...

Cited by: 244 Author: Mark W. Feinberg, Kathryn J. Moore
Publish Year: 2016

Macrophages in atherosclerosis: a dynamic balance | Nature ...

<https://www.nature.com/articles/nri3520>

Sep 02, 2013 · Abstract. Atherosclerosis is a chronic inflammatory disease that arises from an imbalance in lipid metabolism and a maladaptive immune response driven by the accumulation of cholesterol-laden macrophages in the artery wall. Through the analysis of the progression and regression of atherosclerosis in animal models,...

Cited by: 1302 Author: Kathryn J. Moore, Frederick J. Sheedy, Edw...
Publish Year: 2013

Inflammation and its resolution in atherosclerosis ...

<https://www.nature.com/articles/s41569-019-0169-2>

Mar 07, 2019 · Modified lipoproteins and cholesterol crystals accumulate in the arterial intima and induce foam cell formation and inflammation. Defective efferocytosis of apoptotic foam cells leads to necrotic core formation. Defective efferocytosis is a sign of failure in the resolution of inflammation.

Cited by: 67 Author: Magnus Bäck, Arif Yurdagul, Ira Tabas, Kat...
Publish Year: 2019 Author: Magnus Bäck

Cytokines, macrophage lipid metabolism and foam cells ...

<https://www.sciencedirect.com/science/article/pii/S0163782711000191>

Other macrophage actions during the disease include the production of chemokines and the secretion of ECM-degrading proteases. Macrophages also undergo apoptosis, particularly in advanced atherosclerotic lesions where free cholesterol accumulation in foam cells triggers apoptotic signals such as the ER stress-UPR-CHOP pathway.

Cited by: 283 Author: James Edward McLaren, Daryn Robert Mic...
Publish Year: 2011

Mechanisms of foam cell formation in atherosclerosis ...

<https://link.springer.com/article/10.1007/s00109-017-1575-8>

Aug 07, 2017 · Elevated expression of LOX-1 leads to increased lipid uptake by macrophages. By contrast, expression of ABCA1 and ABCG1 is decreased in atherosclerosis, further aggravating intracellular cholesterol accumulation and promoting generation foam cells formation [13].

Cited by: 106 Author: Dimitry A. Chistiakov, Alexandra A. Melnich...
Publish Year: 2017

microRNA-33 Regulates Macrophage Autophagy in Atherosclerosis

<https://www.researchgate.net/publication/316315496...>

Macrophage-specific loss of miR-33 decreases lipid accumulation and inflammation under hyperlipidemic conditions, leading to reduced plaque burden.

MicroRNA-33-dependent regulation of macrophage metabolism ...

<https://www.jci.org/articles/view/81676>

In atherosclerosis, where macrophages are key integrators of inflammatory and metabolic signals that drive plaque progression, metabolic reprogramming by anti-miR-33 promoted the accumulation of M2 macrophages and FOXP3+ Tregs in plaques, decreased markers of systemic inflammation, and reduced plaque size. Importantly, we found that miR-33 ...



ALL

IMAGES

VIDEOS

41,700 Results

Any time ▾

Macrophages in atherosclerosis: a dynamic balance

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4357520>

Turning to apoptosis, the continued presence of **macrophage foam cells** in the **inflammatory, lipid-rich** environment of the plaque can eventually lead to cytotoxicity from ER and oxidative stress

1. Activation of ER stress responses occurs as a result of **free cholesterol accumulation in macrophages** and by saturated fatty acids signaling via SRA, TLR2 and TLR4 75 .

Cited by: 1302

Author: Kathryn J. Moore, Frederick J. Sheedy, ...

Publish Year: 2013

MicroRNA-33–dependent regulation of macrophage metabolism ...

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4665799>

Dec 01, 2015 · Introduction. **Macrophages** are critical effectors of **inflammation** and innate immunity; they also regulate adaptive immunity by recruiting and/or activating other immune **cells** at **inflammatory** foci (). In addition, **macrophages** play important roles in tissue homeostasis and resolution of **inflammation** (). To fulfill these functions, **macrophages** can adopt a spectrum of ...

Cited by: 185

Author: Mireille Ouimet, Hasini N. Ediriweera, U....

Publish Year: 2015

Macrophage miRNAs in atherosclerosis - ScienceDirect

<https://www.sciencedirect.com/science/article/pii/S1388198116300270>

The interaction between **cholesterol accumulation** and **inflammatory activation** means that therapeutic targeting of **macrophage foam cells** will ultimately **reduce inflammation** in the vessel wall and thus reduce atherosclerotic lesion burden.

Cited by: 10

Author: Denuja Karunakaran, Katey J. Rayner

Publish Year: 2016

microRNA-33 Regulates Macrophage Autophagy in Atherosclerosis

<https://www.ahajournals.org/doi/full/10.1161/atvbaha.116.308916>

In **atherosclerosis**, **lipid-laden macrophage foam cells** accumulate in the artery wall, where they



MicroRNA sequences modulating inflammation and lipic



ALL

IMAGES

VIDEOS

MAPS

NEWS

SHOPPING

41,800 Results

Any time ▾

Macrophages in atherosclerosis: a dynamic balance

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4357520>

Turning to apoptosis, the continued presence of **macrophage foam cells** in the **inflammatory, lipid-rich** environment of the plaque can eventually lead to cytotoxicity from ER and oxidative stress 1. Activation of ER stress responses occurs as a result of **free cholesterol accumulation in macrophages** and by saturated fatty acids signaling via SRA, TLR2 and TLR4 75 .

Cited by: 1302 **Author:** Kathryn J. Moore, Frederick J. Sheedy, E...

Publish Year: 2013

MicroRNA-33–dependent regulation of macrophage metabolism ...

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4665799>

Dec 01, 2015 · In the setting of hypercholesterolemia, monocyte-derived **macrophages** infiltrate the arterial intima to clear retained apolipoprotein B–containing (apoB-containing) lipoproteins (**e.g., LDL**) and are transformed into **lipid-laden macrophage foam cells** . For reasons that are poorly understood, these **macrophage foam cells** persist in the artery wall, setting off a maladaptive immune response that ...

Cited by: 185 **Author:** Mireille Ouimet, Hasini N. Ediriweera, U. ...

Publish Year: 2015

MicroRNA-27 Prevents Atherosclerosis by Suppressing ...

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4892477>

It is well known that the development of atherosclerosis, a chronic vascular disease, is closely associated with the **subendothelial accumulation of macrophages** and derived **foam cells**[33–36], one of the hallmarks of atherosclerosis. High expression of **pro-inflammatory cytokines** and **excessive accumulation of lipids** in **activated macrophages** have been shown to promote the progression of ...

Cited by: 29 **Author:** Wei Xie, Liang Li, Min Zhang, Hai-Peng C...

Publish Year: 2016

MicroRNA-mediated mechanisms of the cellular stress ...

<https://www.nature.com/articles/nrcardio.2015.38>