

Name of Journal: *World Journal of Clinical Cases*

Manuscript NO: 64575

Manuscript Type: MINIREVIEWS

Gene × Environment Interaction in Major Depressive Disorder

Ming-Zhe Zhao, Xu-Sheng Song, Jing-Song Ma

Abstract

Major depressive disorder (MDD) is a multifactorial disorder, where multiple susceptibility genes interact with environmental factors, predisposing individuals to the development of the illness. In this article, we reviewed different gene×environment

Match Overview

1	Internet 62 words crawled on 30-Sep-2019 www.nature.com	3%
2	Internet 30 words crawled on 27-Jan-2020 www.annualreviews.org	2%
3	Crossref 20 words Elham Assary, John Paul Vincent, Robert Keers, Michael Pluess. "Gene-environment interaction and psychiatric disorders..."	1%

Gene × Environment Interaction in Major Depressive Disorder



ALL IMAGES VIDEOS

4,290,000 Results Any time ▾

[PDF] **Gene—Environment Interactions in Major Depressive ...**

<https://journals.sagepub.com/doi/pdf/10.1177/070674371305800203>

• Gene–environment interactions might define biologically distinct subgroups of **depression**, possibly explaining the variability in response to antidepressant treatments. • Understanding the systemic and molecular mechanisms underlying the gene–environment interactions may help to ...

Gene–Environment Interaction in Major Depression: Focus ...

<https://www.frontiersin.org/articles/10.3389/fpsy.2015.00068> ▾

Gene–Environment Interaction in Major Depression Gene–environment interactions reflect a **causal mechanism where one or more genetic variants and one or more environmental factors contribute to the causation of a condition in the same individual** with genetic factors influencing the **sensitivity to environmental exposures** (50).

Cited by: 101

Author: Nicola Lopizzo, Luisella Bocchio Chiavett...

Publish Year: 2015

PEOPLE ALSO ASK

Are there any genes that can cause depression? ▾

How are genetic polymorphisms related to major depressive disorder? ▾

Is depression a heterogeneous psychiatric disorder? ▾

Is stress a precipitating factor for depression? ▾

Feedback

Gene—Environment Interactions in Major Depressive ...

<https://journals.sagepub.com/doi/10.1177/070674371305800203>

Feb 01, 2013 · Abstract Family, twin, and epidemiologic studies have suggested that both genes and environment are important risk factors for the development of major depressive disorder (MDD). In the absence of consistent and strong main genetic effects, numerous studies have supported **gene–environment** interactions in this disorder.

Cited by: 108

Author: Torsten Klengel, Elisabeth B. Binder

Publish Year: 2013

国内版

国际版



Gene × environment interaction in major depressive disorder



ALL

IMAGES

VIDEOS



Add the Give with Bing

44,700 Results

Any time ▼

Major depressive disorder (MDD) is a multifactorial and polygenic disorder, where **multiple and partially overlapping sets of susceptibility genes** interact each other and with the environment, predisposing individuals to the development of the illness.

Cited by: 112

Publish Year: 2015

Gene–Environment Interaction in Major Depression: Focus ...

 www.frontiersin.org/articles/10.3389/fpsvt.2015.00068/full

Reference	Gene	Epigenetic modification	Findings
Kang et al. (118)	BDNF	DNA methylation	A higher BDNF promoter methylation status was significantly associated with suicidal ideation.
Li et al. (119)	BDNF	miRNA	Reverse relationship between the serum BDNF levels and the miR-132/miR-152 levels in depression.
Kang et al. (118)	SLO64	DNA methylation	Higher SLO64 promoter methylation status was significantly associated with childhood adversities.
Moya et al. (120)	SLO64	miRNA	BDNF expression is regulated additionally by miR-15a as well as miR-143 in human and rat tissues.
Kargel et al. (121)	FKBP5	DNA methylation	FKBP5 methylation might increase the differential responsiveness of FKBP5 to GR activation, which could worsen stress over time.
Fuchikami et al. (122)	BDNF	DNA methylation	DNA methylation profiles of CpG 7 of the BDNF gene may be a valuable diagnostic biomarker for major depression.
Perroud (123)	NR0C1	DNA methylation	Childhood maltreatment associated with increased methylation of NR0C1 promoter in the blood of psychiatric patients.
Radtke et al. (124)	GR	DNA methylation	Methylation status of the GR gene of adolescent children is influenced by their mother's experience of IPV during pregnancy.
Harasmi et al. (125)	GRPR1	miRNA	miR-34c was further confirmed to be up-regulated after acute and chronic stressful challenge.
Kaler et al. (126)	BDNF	DNA methylation	BDNF promoter locus IV is frequently hypermethylated in the Yernicka area of the postmortem brain of suicide subjects.
Baudry et al. (127)	SLO64	miRNA	miR-15 contributes to the therapeutic action of SSRIs antidepressants in monoaminergic neurons.
Lee et al. (128)	FKBP5	DNA methylation	After chronic exposure to CORT, 2-A had increase in FKBP5 expression and a decrease in DNA methylation.
Kawashima et al. (129)	GR, BDNF	miRNA	An excess glucocorticoid exposure results in a decrease in the BDNF-dependent neuronal function via suppressing miR-132 expression.
Roth et al. (130)	BDNF	DNA methylation	Early maltreatment produced changes in methylation of BDNF that caused altered BDNF gene expression in the adult prefrontal cortex.
McGowan et al. (131)	NR0C1	DNA methylation	Methylation levels of the GR 1F promoter increased in the hippocampus from suicide victims with a history of childhood abuse.
Cheng et al. (132)	SOX9	miRNA	miR-124-mediated repression of Sox9 is important for progression along the DVZ stem cell lineage to neurons.
Oberlander et al. (133)	NR0C1	DNA methylation	Methylation status of the human NR0C1 gene in newborns is sensitive to perinatal maternal mood.



See more

Major depressive disorder (MDD) is a multifactorial and polygenic disorder, where **multiple and partially overlapping sets of susceptibility genes** interact each other and with the environment, predisposing individuals to the development of the illness.

Cited by: 112
Publish Year: 2015

Gene–Environment Interaction in Major Depression: Focus on ...
www.frontiersin.org/articles/10.3389/fpsy.2015.00068/full

Author	Year	Significance	Findings
Ang et al. (2015)	2015	Genetic	A higher MDD heritability estimate was observed in individuals with a history of MDD compared to those without.
Ang et al. (2015)	2015	Genetic	Genetic factors contribute to the causation of MDD, but the effect is not fully understood.
Ang et al. (2015)	2015	Genetic	Genetic factors contribute to the causation of MDD, but the effect is not fully understood.
Ang et al. (2015)	2015	Genetic	Genetic factors contribute to the causation of MDD, but the effect is not fully understood.
Ang et al. (2015)	2015	Genetic	Genetic factors contribute to the causation of MDD, but the effect is not fully understood.
Ang et al. (2015)	2015	Genetic	Genetic factors contribute to the causation of MDD, but the effect is not fully understood.
Ang et al. (2015)	2015	Genetic	Genetic factors contribute to the causation of MDD, but the effect is not fully understood.
Ang et al. (2015)	2015	Genetic	Genetic factors contribute to the causation of MDD, but the effect is not fully understood.
Ang et al. (2015)	2015	Genetic	Genetic factors contribute to the causation of MDD, but the effect is not fully understood.
Ang et al. (2015)	2015	Genetic	Genetic factors contribute to the causation of MDD, but the effect is not fully understood.

Was this helpful?

PEOPLE ALSO ASK

How does gene-environment interaction affect major depression?

How does the environment affect major depressive disorder?

When do genes and environment start to interact?

Feedback

Gene–Environment Interaction in Major Depression: Focus on ...
<https://www.frontiersin.org/articles/10.3389/fpsy.2015.00068> ▾

< vulnerability Risk Facto...

Gene–Environment Interaction i...

Conclusion

CoI >


Gene–environment interactions reflect a causal mechanism where one or more genetic variants and one or more environmental factors contribute to the causation of a condition in the same individual with genetic factors influencing the sensitivity to environmental exposures (50). A number of environmental factors have been found to contribute to depression vulnerability, including in utero exposure to infection, lack of nutrients, maternal stress, perinatal complications, social disadvantage, urban upbringing, ethni...

See more on frontiersin.org

Cited by: 112 Author: Nicola Lopizzo, Luisella Bocchio Chiavetto, ...
Publish Year: 2015

Major Depressive Disorder

Medical Condition



Sadness and loss of interest

Mental health disorder having episodes of psychological depression.

- Very common (More than 3 million cases per year in US)
- Doesn't require lab test or imaging
- Treatable by a medical professional
- Can be lifelong

Caused by genetic, environmental and psychological factors. Symptoms include feelings of sadness, low esteem, hopelessness. Psychotherapy and medications can help overcome the condition. Risk of self-harm or suicidal thoughts or actions make major depressive disorder a life-threatening condition.

- ### Symptoms
- Symptoms include:
- Feelings of sadness
 - Feelings of hopelessness
 - Loss of interest/Lack of pleasure
 - Short temper
 - Irritation
 - Tiredness
 - Memory Loss
 - Sleep disorders