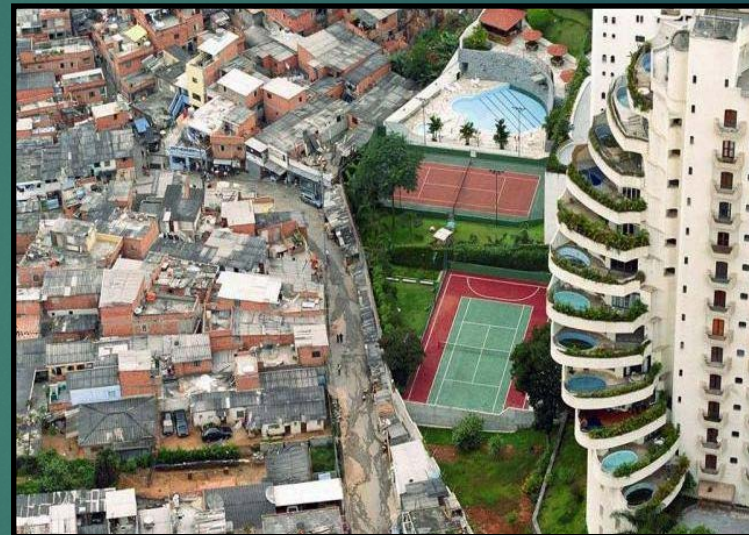
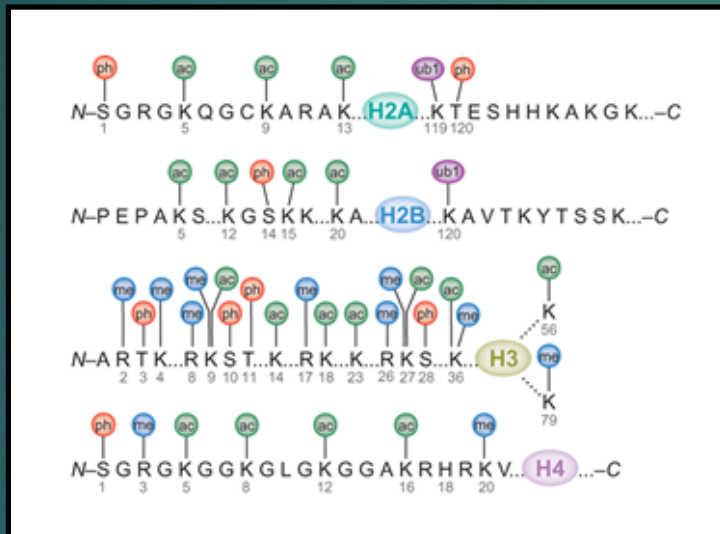


L'épigénétique comme biomarqueur d'inégalités sociales de santé



Conférence internationale du CIQSS

Politiques sociales et inégalités de santé – une perspective internationale

Université du Québec à Montréal

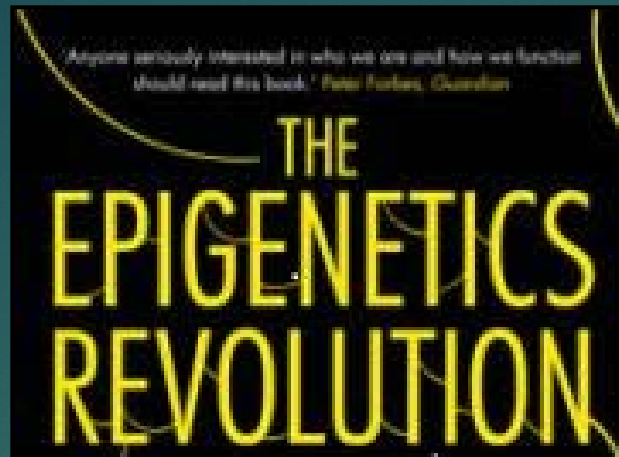
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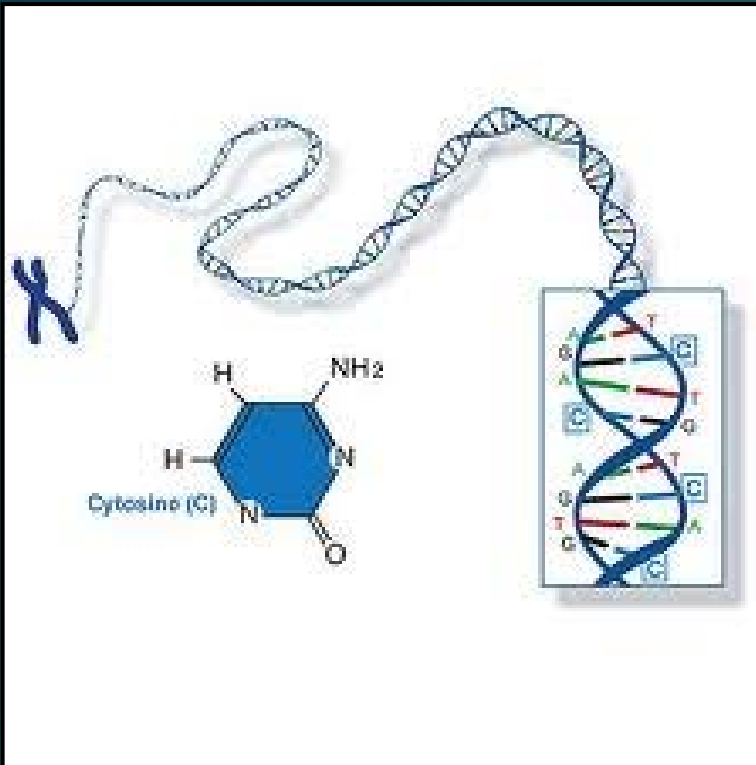
Charles Dupras

Candidat au PhD, Bioéthique

École de santé publique (ESPUM)

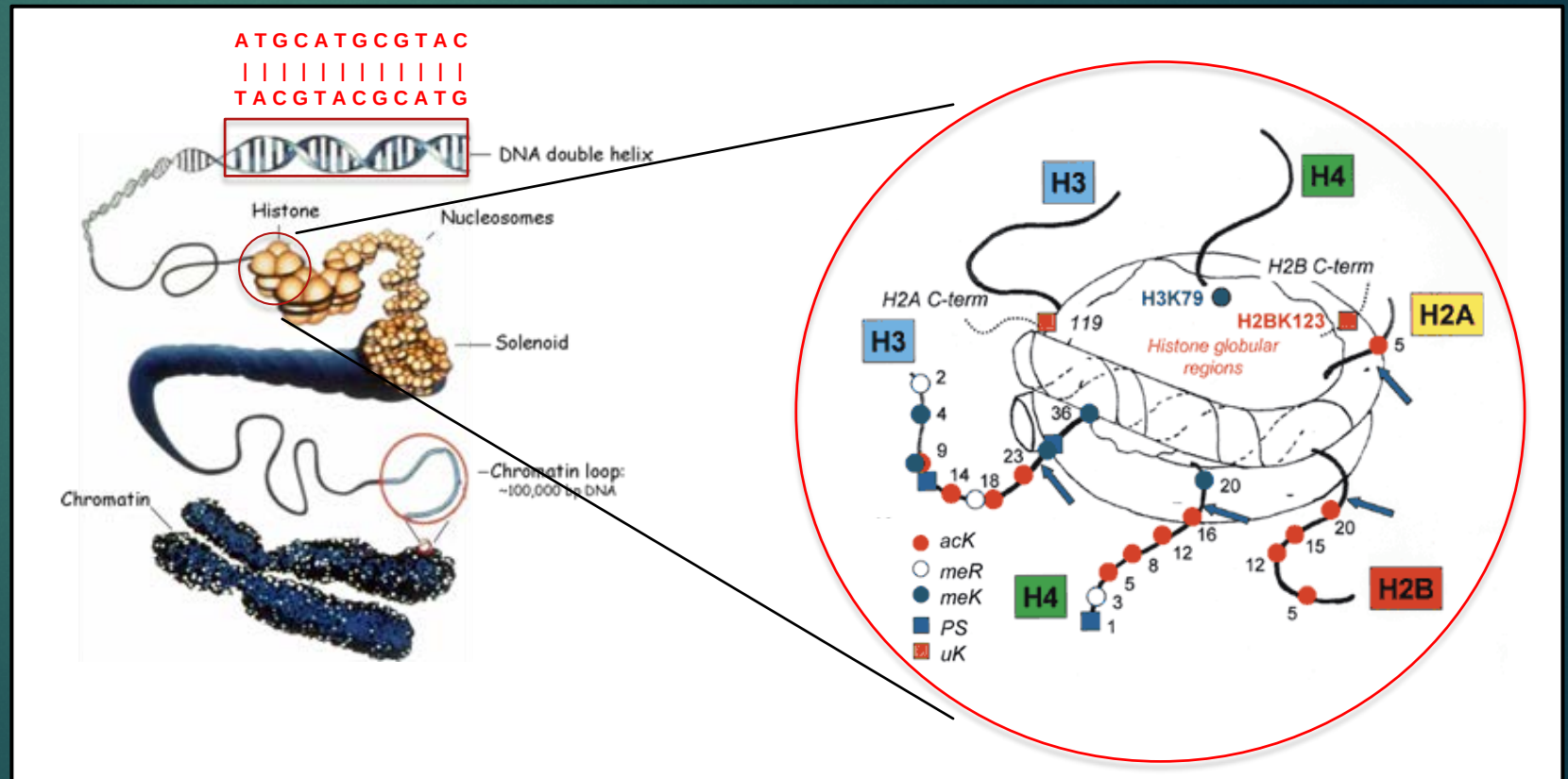
Université de Montréal





Méthylation de l'ADN

Modifications des histones



Stimuli Environnementaux

Modification
Électrostatique

répulsion

attraction

ON



Expression



Répression

OFF

Réponses Biologiques

Early Nutrition, Epigenetic Changes at Transposons and Imprinted Genes, and Enhanced Susceptibility to Adult Chronic Diseases

Robert A. Waterland, PhD, and Randy L. Jirtle, PhD

*Department of Radiation Oncology, Duke University Medical Center,
Durham, North Carolina, USA*

INTRODUCTION

Several recent reviews surveying the field of genomics^{1,2} have not discussed the mechanisms play at the nexus between

Persistent epigenetic differences associated with prenatal exposure to famine in humans

Bastiaan T. Heijmans^{a,1,2}, Elmar W. Tobia^{a,2}, Aryeh D. Stein^b, Hein Putter^c, Gerard J. Blauw^d, Ezra S. Susser^{e,f}, P. Eline Slagboom^a, and L. H. Lumey^{e,1}

Departments of ^aMolecular Epidemiology, ^cMedical Statistics, and ^dGerontology and Geriatrics, Leiden University Medical Center, Leiden, The Netherlands; ^bHubert Department of Global Health, Rollins School of Public Health, Emory University Atlanta, GA 30322; ^eDepartment of Epidemiology, Mailman School of Public Health, Columbia University, New York, NY 10032; and ^fNew York State Psychiatric Institute, New York, NY 10032

Edited by Charles R. Cantor, Sequenom Inc., San Diego, CA, and approved September 17, 2008 (received for review July 7, 2008)

Extensive epidemiologic studies have suggested that adult disease risk is associated with adverse environmental conditions early in development. Although the mechanisms behind these relationships are unclear, an involvement of epigenetic dysregulation has been hypothesized. Here we show that individuals who were prenatally exposed to famine during the Dutch Hunger Winter in 1944–45 had, 6 decades later, less DNA methylation of the imprinted *IGF2* gene compared with their unexposed, same-sex siblings. The association was specific for periconceptual expo-

a normally distributed quantitative trait that is largely determined by genetic factors in both adolescence and middle age, indicating that the methylation mark is stable up to middle age. Thus, if affected by environmental conditions early in human development, altered *IGF2* DMR methylation may be detected many years later.

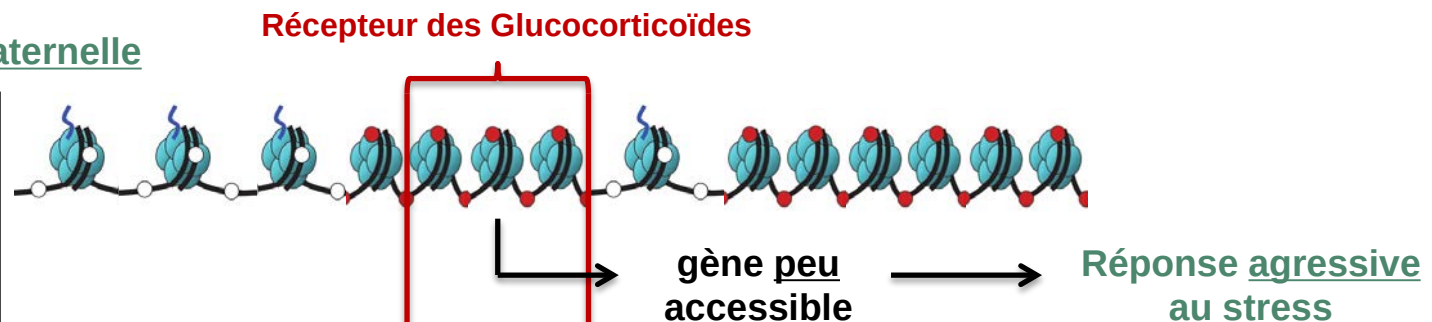
Here we used our ongoing Hunger Winter Families Study (8) to investigate whether prenatal exposure to famine is associated with persistent differences in methylation of the *IGF2* DMR.

Epigenetic programming by maternal behavior

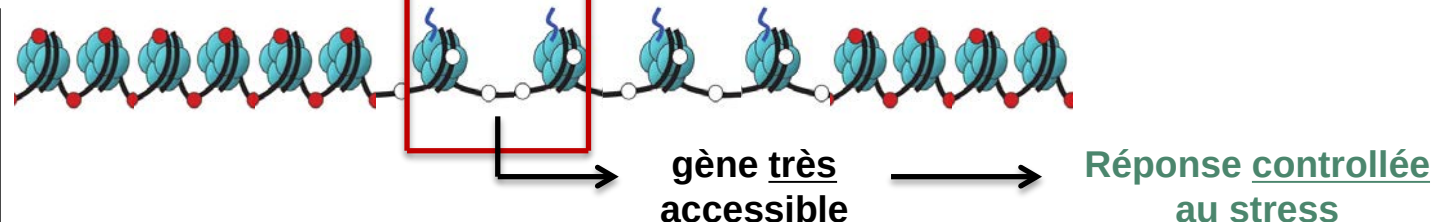
Ian C G Weaver^{1,2}, Nadia Cervoni³, Frances A Champagne^{1,2}, Ana C D'Alessio³, Shakti Sharma¹, Jonathan R Seckl⁴, Sergiy Dymov³, Moshe Szyf^{2,3} & Michael J Meaney^{1,2}

Here we report that increased pup epigenome at a glucocorticoid receptor (GR) and ABN were found to have differences emerged over the first 2 weeks of life with altered histone acetylation and a deacetylase inhibitor removed the

Faible attention maternelle



Attention maternelle soutenue



The epigenome

Archive of the prenatal environment

Bastiaan T. Heijmans,^{1,*} Elmar W. Tobin,¹ L.H. Lumey² and P. Elina Slagboom¹

¹Molecular Epidemiology, Leiden University Medical Center, Leiden, The Netherlands
New York, NY USA

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Review

The epigenetics of social adversity in early life: Implications for mental health outcomes

Patrick O. McGowan^{a,b}, Moshe Szyf^{b,c,*}

^a Department of Psychiatry, McGill University, Montreal, Quebec, Canada

^b Sackler Program for Epigenetics and Psychobiology at McGill University,

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ABSTRACT

An organism's
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Epigenetic pat
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Epigenetic Influence of Social Experiences Across the Lifespan

ABSTRACT: The critical role of social interactions in driving phenotypic variation has long been inferred from the association between early social deprivation and adverse neurodevelopmental outcomes. Recent evidence has implicated molecular pathways involved in the regulation of gene expression as one possible route through which these long-term outcomes are achieved. These epigenetic effects, though not exclusive to social experiences, may be a mechanism through which the quality of the social environment becomes embedded at a biological level. Moreover, there is increasing evidence for the transgenerational impact of these early experiences mediated through changes in social and reproductive behavior exhibited in adulthood. In this review, recent studies which highlight the epigenetic effects of

Caractéristiques des modifications épigénétiques:

- ▶ Dépendantes de l'environnement (naturel et social)
- ▶ Dynamiques (« fenêtres de sensibilité »)
- ▶ Réversibles (Attention: plasticité variable)
- ▶ Stables (programmation – *mismatch model*)
- ▶ Hérititaires (possible – cellules reproductrices)

Socio-economic status is associated with epigenetic differences in the pSoBid cohort

Dagmara McGuinness,¹ Liane M McGlynn,¹ Paul CD Johnson,² Alan MacIntyre,¹ G David Batty,³ Harry Burns,⁴ Jonathan Cavanagh,⁵ Kevin A Deans,⁶ Ian Ford,² Alex McConnachie,² Agnes McGinty,⁷ Jennifer S McLean,⁸ Keith Millar,⁵ Chris J Packard,⁷ Naveed A Sattar,⁹ Carol Tannahill,^{8,10} Yoga N Velupillai^{8,11} and Paul G Shiels^{1*}

¹Institute of Cancer Sciences, College of Medical, Veterinary and Life Sciences, University of Glasgow, Glasgow, UK

²Robertson Centre for Biostatistics, University of Glasgow, Glasgow, UK, ³Medical Research Council Social and Public Health Sciences Unit, Glasgow, UK, ⁴Scottish Government, Regent Road, Edinburgh, UK, ⁵Scottish Government, Regent Road, Edinburgh, UK, ⁶Scottish Government, Regent Road, Edinburgh, UK, ⁷Scottish Government, Regent Road, Edinburgh, UK, ⁸Scottish Government, Regent Road, Edinburgh, UK, ⁹Scottish Government, Regent Road, Edinburgh, UK, ¹⁰Scottish Government, Regent Road, Edinburgh, UK, ¹¹Scottish Government, Regent Road, Edinburgh, UK

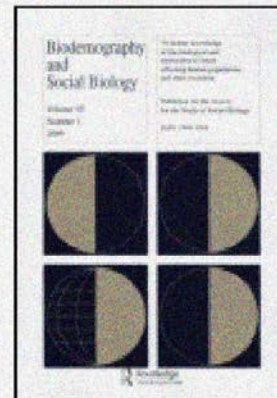
EPIGENETIC EPIDEMIOLOGY

Associations with early-life socio-economic position in adult DNA methylation

Nada Borghol,^{1,2†} Matthew Suderman,^{1,2,3†} Wendy McArdle,⁴ Ariane Racine,^{1,2} Michael Hallett,³ Marcus Pembrey,^{5*} Clyde Hertzman,^{6*} Chris Power^{7*} and Moshe Szyf^{1,2*}

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Epigenetic Signatures May Explain the Relationship between Socioeconomic Position and Risk of Mental Illness: Preliminary Findings from an Urban Community-Based Sample

Monica Uddin^a, Sandro Galea^b, Shun Chiao Chang^c, Karestan C. Koenen^b, Emily Goldmann^d, Derek E. Wildman^e & Allison E. Aiello^d

Equity in Public Health: An Epigenetic Perspective

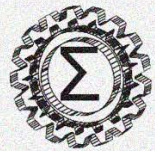
G. Stapleton^a P. Schröder-Bäck^a D. Townsend^b

Departments of ^aInternational Health and ^bHealth, Ethics and Society, Maastricht University, CAPHRI School for

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Public Health Genomics—Integrating Genomics and Epigenetics into National and European Health Strategies and Policies

Tobias Schulte in den Bäumen and Angela Brand



SYNOPSIS

A JOURNAL OF SCIENCE, TECHNOLOGY, ETHICS, AND POLICY

Epigenetic transgenerational inheritance: Should obesity- prevention policies be reconsidered?

Mihai D. Niculescu, MD, PhD ¹

1. Nutrition Research Institute, Nutrition Department, Gillings School of Public Health, The University of North Carolina at Chapel Hill, Kannapolis, NC, 28081, Email: Mihai_Niculescu@unc.edu.

Abstract

Studies have shown that the nutrition of one generation can alter the epigenetics of DNA in subsequent generations. The increase in the obesity epidemic, especially in the US requires significant health care-related expenditures and negatively impacts the quality of life for many Americans. Obesity is influenced by genetic

creasingly recognized as important
of the last decade has seen an
penetrance genes to the gene-
th and health policy makers are
standings of disease etiology into
the different professions involved
ments. The analysis and research



EPIGENETICS AND THE ENVIRONMENT IN BIOETHICS

CHARLES DUPRAS, VARDIT RAVITSKY AND BRYN WILLIAMS-JONES

Keywords

epigenetics,
environment,
bioethics,
public health,
determinants of health,
responsibility

ABSTRACT

A rich literature in public health has demonstrated that health is strongly influenced by a host of environmental factors that can vary according to social, economic, geographic, cultural or physical contexts. Bioethicists should, we argue, recognize this and – where appropriate – work to integrate environmental concerns into their field of study and their ethical deliberations. In this article, we present an argument grounded in scientific research at the molecular level that will be familiar to – and so hopefully

Epigenetic Responsibility

Maria Hedlund

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Social Work Advance Access published December 6, 2012

Epigenetics and the Social Work Imperative

Terri Combs-Orme

Epigenesis is the biochemical process through which some genes are expressed and others remain silent, and it reinforces and explains the powerful impact that the environment has on human development. Epigenesis provides a mandate for social workers to ensure, and high levels of environmental exposure, and high levels of environmental exposure, and high levels of environmental exposure. Epigenesis provides a mandate for social workers to ensure, and high levels of environmental exposure, and high levels of environmental exposure. Epigenesis provides a mandate for social workers to ensure, and high levels of environmental exposure, and high levels of environmental exposure.

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Preserving Human Potential as Freedom: A Framework for Regulating Epigenetic Harms

Fazal Khan

University of Georgia School of Law, fkhan@uga.edu

L'épigénétique comme biomarqueur:

- ▶ Complémentaire à l'épidémiologie
- ▶ Relations causales (mécanismes biochimiques)
- ▶ Identifier des populations vulnérables (inégalités sociobiologiques de santé)
- ▶ Identifier des « fenêtres de sensibilité » et des fenêtres d'opportunité

Éthiques



Archive prénatale et vie privée

Éthiques



Archive prénatale et vie privée

Sociaux



Vulnérabilité vs Stigmatisation

Plusieurs enjeux

Éthiques



Archive prénatale et vie privée

Sociaux



Vulnérabilité vs Stigmatisation

Politiques



Allocation des ressources - Responsabilités

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