
Hormon für Hirntrauma

AAAS-Tagung in San Diego: Hoffen auf Progesteron

Es kann ein Sturz sein oder ein harter Schlag auf den Kopf. Der Aufprall beschädigt den Schädel, Blutgefäße und Nervenfasern im Gehirn reißen. Schwere Schädel-Hirn-Traumata sind eine häufige Todesursache. Die Opfer sind zunächst bewusstlos, im schlimmsten Fall leiden sie über Monate hinweg oder gar ihr Leben lang an Lähmungser-

Frankfurter Allgemeine Zeitung, 24.02.2010, Nr. 46, S. N2

Natur und Wissenschaft

Hormon für Hirntrauma

AAAS-Tagung in San Diego: Hoffen auf Progesteron

Es kann ein Sturz sein oder ein harter Schlag auf den Kopf. Der Aufprall beschädigt den Schädel, Blutgefäße und Nervenfasern im Gehirn reißen. Schwere Schädel-Hirn-Traumata sind eine häufige Todesursache. Die Opfer sind zunächst bewusstlos, im schlimmsten Fall leiden sie über Monate hinweg oder gar...

In the past 20 years, dozens of phase II and III clinical trials for moderate and severe traumatic brain injury (TBI) have failed.

Taken together they are the first to show a substantial benefit for TBI in human patients, making PROG among the most promising of the candidates that have been proposed.

Science NOW UP TO THE MINUTE NEWS FROM SCIENCE

A Sexy New Treatment for Traumatic Brain Injury?

by Greg Miller on 19 February 2010, 8:28 PM | Permanent Link | 7 Comments

Acta Obstet Gynecol Scand 2001; 80: 972–973
Printed in Denmark · All rights reserved

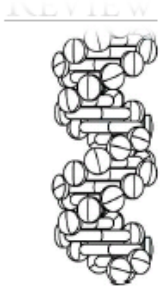
Substantial relief of myopathic disability by progesterone therapy

HARALD LASS[1], MICHAEL SATOR[1], FRITZ ZIMPRICH[2], IRENE LANG[3], JOSEF ZEITLHOFER[2] AND JOHANNES HUBER[1]

Gynecol Endocrinol. 1999 Jun;13 Suppl 4:41-5.

Progesterone and neurology.

Gruber DM, Sator MO, Wieser F, Worda C, Huber JC.

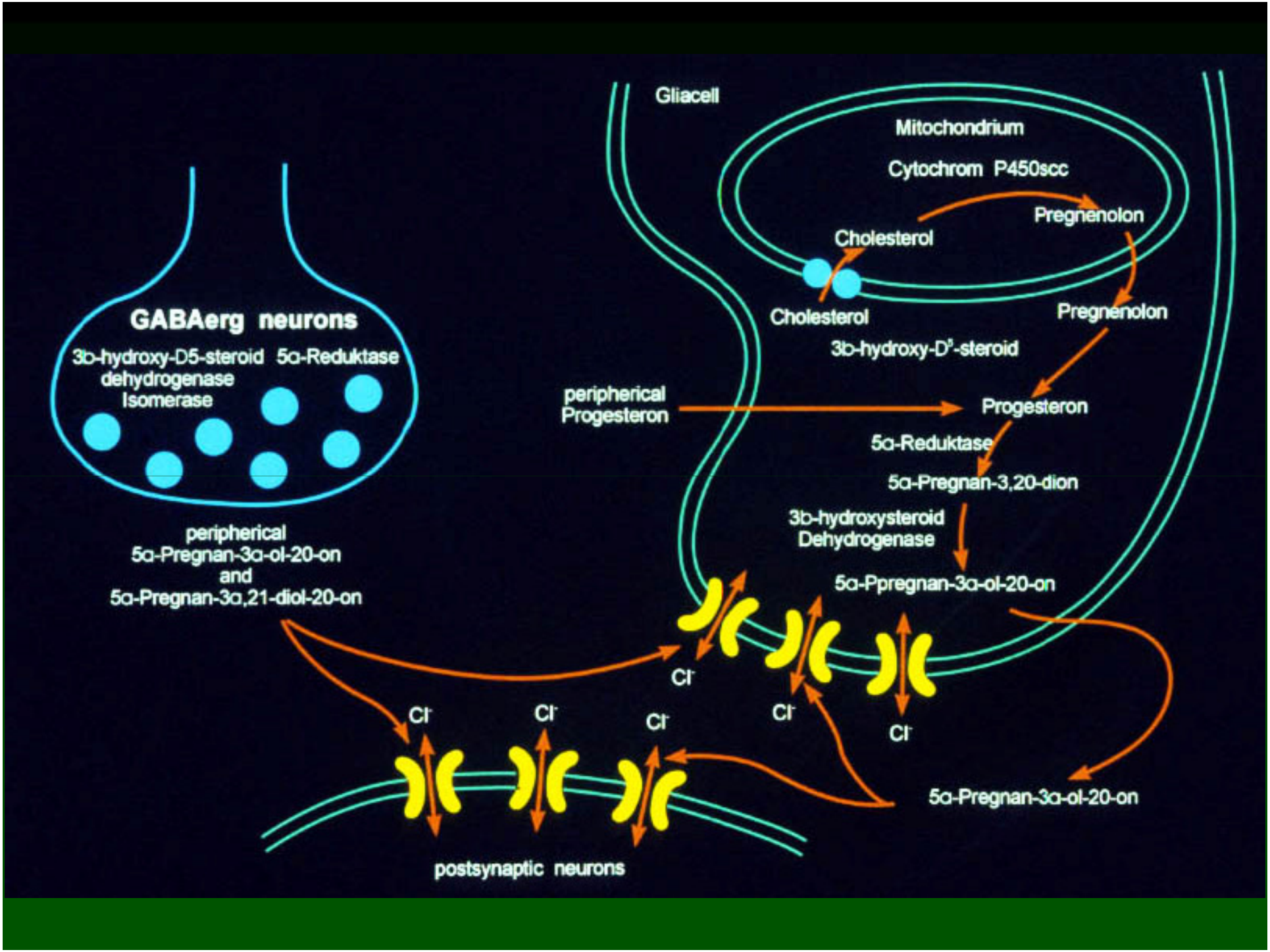


Applications of polymorphisms and pharmacogenomics in obstetrics and gynecology

Clemens B Tempfer[†1,2], *Christian Schneeberger*[2] & *Johannes C Huber*[2]

[†]*Author for correspondence*

The number of reports investigating disease susceptibility based on the carriage of low-penetrance, high-frequency polymorphisms has steadily increased over the last years. Evidence based on meta-analyses of individual case-control studies is accumulating,


Gliacell
Mitochondrium
Cytochrom P450scc
Pregnenolon
Cholesterol
Cholesterol
Pregnenolon
3b-hydroxy-D5-steroid
GABAerg neurons
3b-hydroxy-D5-steroid dehydrogenase Isomerase
5a-Reduktase
peripherical Progesteron
Progesteron
5a-Reduktase
5a-Pregnan-3,20-dion
3b-hydroxysteroid Dehydrogenase
5a-Ppregnan-3a-ol-20-on
peripherical 5a-Pregnan-3a-ol-20-on and 5a-Pregnan-3a,21-diol-20-on
Cl-
Cl-
Cl-
Cl-
Cl-
Cl-
5a-Pregnan-3a-ol-20-on
postsynaptic neurons

Available online at www.sciencedirect.com
SCIENCE DIRECT®
Maturitas 46S1 (2003) S71–S75
MATURITAS
THE EUROPEAN MENOPAUSE JOURNAL
www.elsevier.com/locate/maturitas

Differential effects of progestins on the brain

Christian J. Gruber*, Johannes C. Huber

Geringeres Hirnödem bei Frauen in Lutealphase

THE LANCET – Vol 358 Sep 8, 2001

What can sex hormones do for the damaged brain?

For over a decade, neurobiologist Donald Stein (Emory University, Departments of Psychology, Emergency Medicine and Neurology, Atlanta, GA, USA) has championed progesterone's prowess as a neuroprotective steroid. Today, his efforts are paying off and the hormone is being investigated as an agent for treating head trauma. With a team in Atlanta he is about to embark on a pilot clinical study on the use of progesterone to halt the cascade of cell death that follows traumatic injury.

"I'd heard a lot of clinical data that females recovered [from head injuries] better than men and I wanted to test that out in the lab", Stein explains. Stein set up animal models of frontal cortex injuries and found that female rats made speedier

are currently 5·3 million Americans living with neurological disabilities—ranging from subtle cognitive deficits to persistent vegetative state—that result from brain injury.

Progesterone could make a difference to patients recovering from traumatic brain injury if it could reduce

Hormones for head injury?

NY, USA). Numerous animal studies support the notion that oestrogen protects against ischaemic injury. Currently, investigators at Barnes-Jewish Hospital at Washington University Medical Centre in St Louis are engaged in a prospective, placebo-controlled study that hopes to find out whether oestrogen can reduce neurological complications in women undergoing cardiac surgery—a group known to be at increased risk of ischaemic events.

"Since the majority of these women are post-menopausal, this raises the possibility that low circulating oestrogens could play a role in these events," says Victor G Dávila-Roman, who with Charles Hogue is leading these studies. In Alzheimer's disease, oestrogen has a striking pro-

THE LANCET – Vol 358 Sep 8, 2001

Improved outcomes from the administration of progesterone for patients with acute severe traumatic brain injury: a randomized controlled trial

Guomin Xiao[1*], Jing Wei[2], Weiqi Yan[3*], Weimin Wang[1] and Zhenhui Lu[3]

[1]Department of Neurosurgery and Neurotrauma Center, Affiliated Hospital, College of Medicine, Hangzhou Normal University, Hangzhou 310015, China
[2]Department of Health Center, Affiliated Hospital, College of Medicine, Hangzhou Normal University, Hangzhou 310015, China
[3]Clinical Research Centre, Second Affiliated Hospital, College of Medicine, Zhejiang University, Hangzhou 310009, China
* Contributed equally

Corresponding author: Weiqi Yan, wyan@zju.edu.cn

Received: 1 Nov 2007 Revisions requested: 13 Dec 2007 Revisions received: 16 Jan 2008 Published: 30 Apr 2008

Patients for the treatment group were given progesterone at 1.0 mg/kg via intramuscular injection and then once per 12 hours for 5 consecutive days.

Critical Care 2008, **12**:R61 (doi:10.1186/cc6887)

ProTECT: A Randomized Clinical Trial of Progesterone for Acute Traumatic Brain Injury

David W. Wright, MD
Arthur L. Kellermann, MD, MPH
Vicki S. Hertzberg, PhD
Pamela L. Clark, RN
Michael Frankel, MD
Felicia C. Goldstein, PhD
Jeffrey P. Salomone, MD
L. Leon Dent, MD, MSCR

From the Departments of Emergency Medicine (Wright, Kellermann, Clark, Ander, Lowery, Patel, Wald, Hoffman, Stein), Neurology (Frankel, Goldstein, Stein), Surgery (Salomone), Neurosurgery (Harris, Gupta), and Anesthesiology (Denson), School of Medicine of Emory University, Atlanta, GA; the Department of Biostatistics, Rollins School of Public Health of Emory University, Atlanta, GA (Hertzberg, Gordon); and the Department of Surgery, Morehouse School of Medicine, Atlanta, GA (Dent).

Randomised Double Blind Placebo Controlled

Brain Injury Score 6-12

N = 100

annemergmed.2006.07.932

ProTECT Study

Progesteron i.v.
3 Tage
6-8 Stunden after Injury

Tag 30: 50 % Mortalitätsreduktion gegenüber Plazebo

annemergmed.2006.07.932

Brain, Heal Thyself

Daniel H. Lowenstein and Jack M. Parent

In 1913, the great Spanish neuroscientist Santiago Ramón y Cajal concluded a treatise entitled *Degeneration and Regeneration of the Nervous System* by declaring, "In adult centres the nerve paths are something fixed, ended, immutable. Everything may die, nothing may be regenerated" (*1*). This assertion, based on Cajal's meticulous study of changes in brain anatomy after injury, has been the prevailing dogma for nearly a century. We are still taught that the fully mature brain lacks the intrinsic mechanisms needed to replenish neurons and reestablish neuronal networks after acute injury or in response to the insidious loss of neurons seen in neurodegenerative diseases.

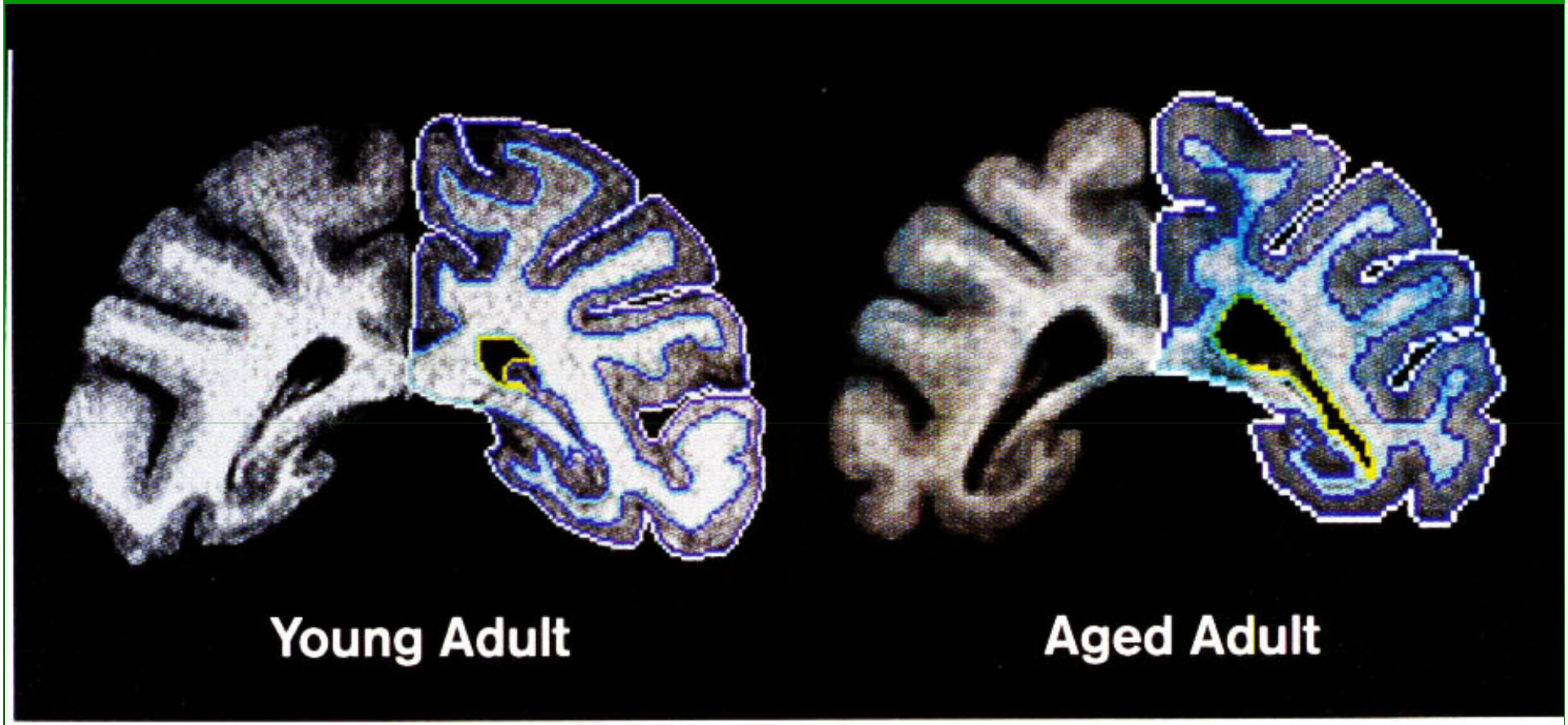
Enhanced online at www.sciencemag.org/cgi/content/full/283/5405/1126

It is time to lay to rest the dogmatic assumption that the central nervous system (CNS) of adult mammals cannot repair itself. Obviously, CNS injuries such as stroke, trauma, or neurodegenerative processes do not fully reverse themselves spontaneously. Recent work suggests, however, that the mammalian CNS has a much greater potential for producing new neurons and repairing damaged regions than previously thought.

First and foremost, the mature CNS is not as hostile an environment for the re-

Progesterone Synthesis and Myelin Formation by Schwann Cells

Herbert L. Koenig,* Michael Schumacher,* Badia Ferzaz, Anh N. Do Thi, Annie Ressouches, Rachida Guennoun, Ingrid Jung-Testas, Paul Robel, Yvette Akwa,† Etienne-Emile Baulieu‡



No shades of gray. These MRI images show loss of white, but not gray, matter in the brain of a 32-year-old rhesus monkey *(right)*. The young adult is 5 years old.

Pharmacopsychiatry. Editor: B. Saletu (Vienna). Original Paper
Neuropsychobiology 2004;49:134-153 (DOI: 10.1159/000076722)

Brain Regions Activated during an Auditory Discrimination Task in Insomniac Postmenopausal Patients before and after Hormone Replacement Therapy: Low-Resolution Brain Electromagnetic Tomography Applied to Event-Related Potentials

Peter Anderer, Bernd Saletu, Gerda Saletu-Zyhlarz, Doris Gruber,
Markus Metka, Johannes Huber, Roberto D. Pascual-Marqui

Psychopharmacology (2005) 178: 389–399
DOI 10.1007/s00213-004-2029-x

ORIGINAL INVESTIGATION

B. Saletu · P. Anderer · G. M. Saletu-Zyhlarz · D. Gruber · M. Metka · J. Huber

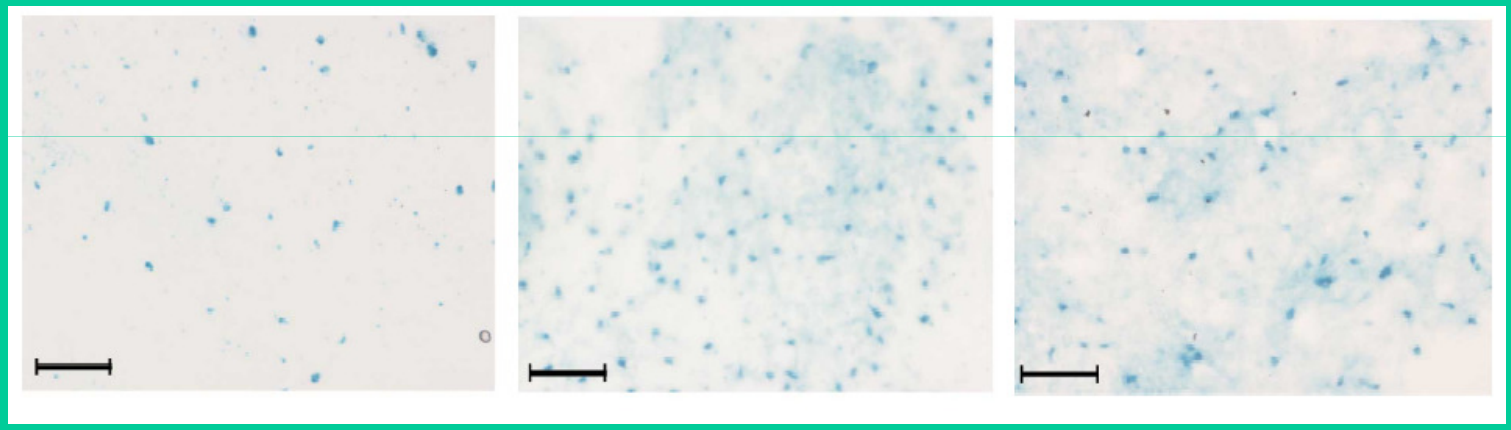
Identifying target regions for vigilance improvement under hormone replacement therapy in postmenopausal syndrome patients by means of electroencephalographic tomography (LORETA)

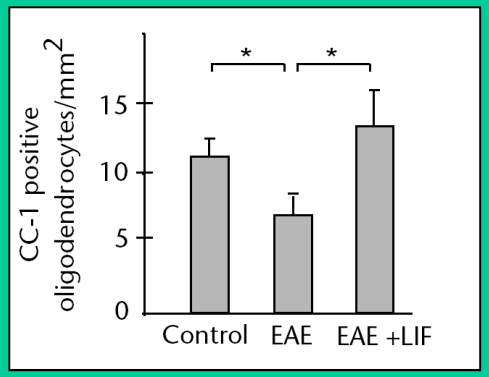
LIF receptor signaling limits immune-mediated demyelination by enhancing oligodendrocyte survival

HELMUT BUTZKUEVEN[1], JIAN-GUO ZHANG[1], MERJA SOILU-HANNINEN[1], HUBERTUS HOCHREIN[1], FIONA CHIONH[1], KYLIE A. SHIPHAM[1], BEN EMERY[1], ANN M. TURNLEY[1], STEVEN PETRATOS[1], MATTHIAS ERNST[2], PERRY F. BARTLETT[1] & TREVOR J. KILPATRICK[1]

[1]*The Walter and Eliza Hall Institute of Medical Research, University of Melbourne, Victoria, Australia*
[2]*Ludwig Institute for Cancer Research, The Royal Melbourne Hospital, Victoria, Australia*
Correspondence should be addressed to T.J.K.; email: kilpatrick@wehi.edu.au

.nature.com





Frontiers in Neuroendocrinology 30 (2009) 158–172

Contents lists available at ScienceDirect

Frontiers in Neuroendocrinology

journal homepage: www.elsevier.com/locate/yfrne

Review

Combination treatment with progesterone and vitamin D hormone may be more effective than monotherapy for nervous system injury and disease

Milos Cekic, Iqbal Sayeed, Donald G. Stein *

Department of Emergency Medicine, Emory University School of Medicine, Atlanta, Georgia, USA

Progesteron 0,4 g
Colecalciferol 2000 I.E.
PEG 400 1,6 g
PEG 6000 1,05 g

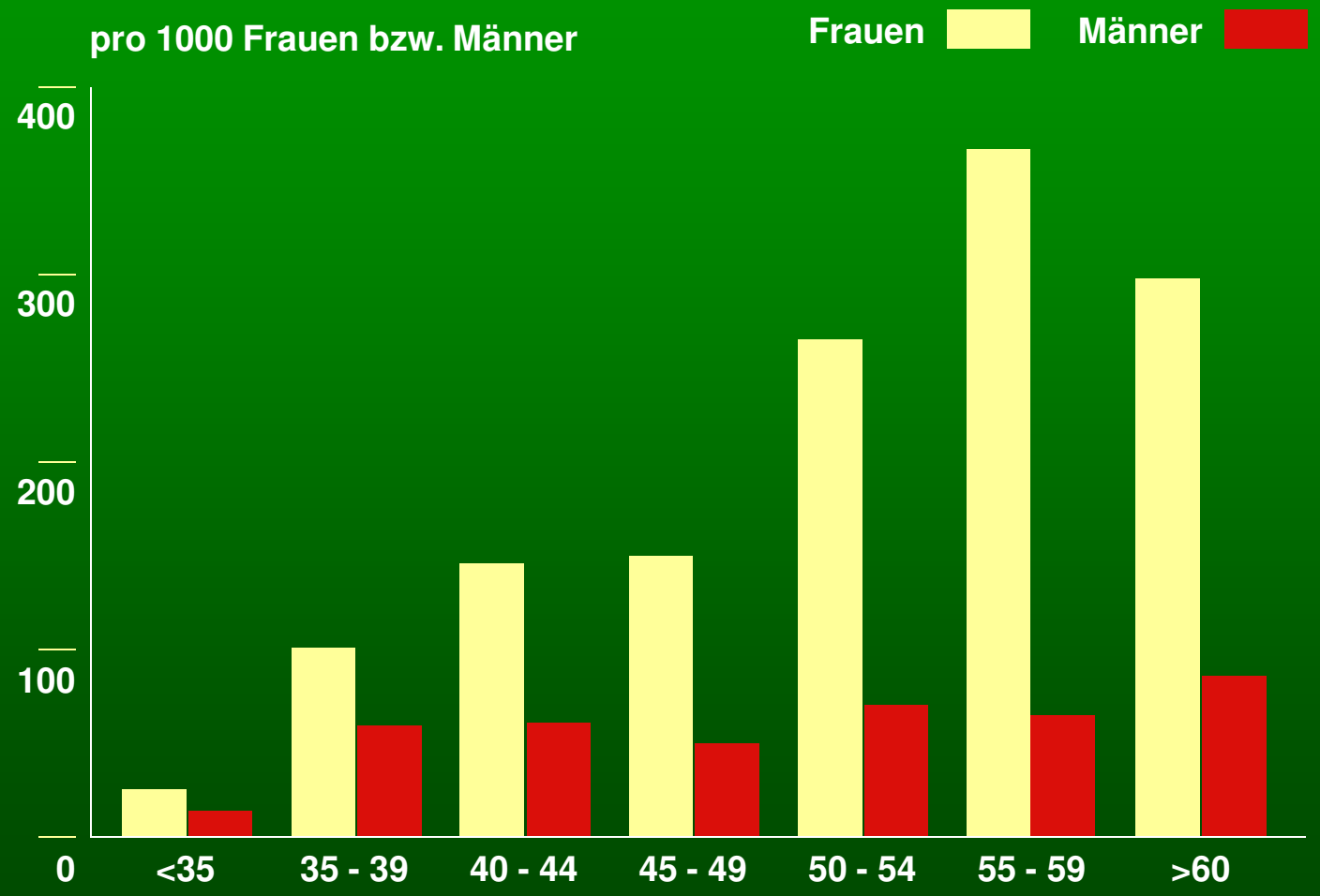
M.u.f. Supp. XXIV

Trends in the prescription of psychotropic drugs and hormone substitutes in Austria

Michael O. Sator, Fritz Wieser,
Doris M. Gruber, Elmar A. Joura,
Johannes C. Huber

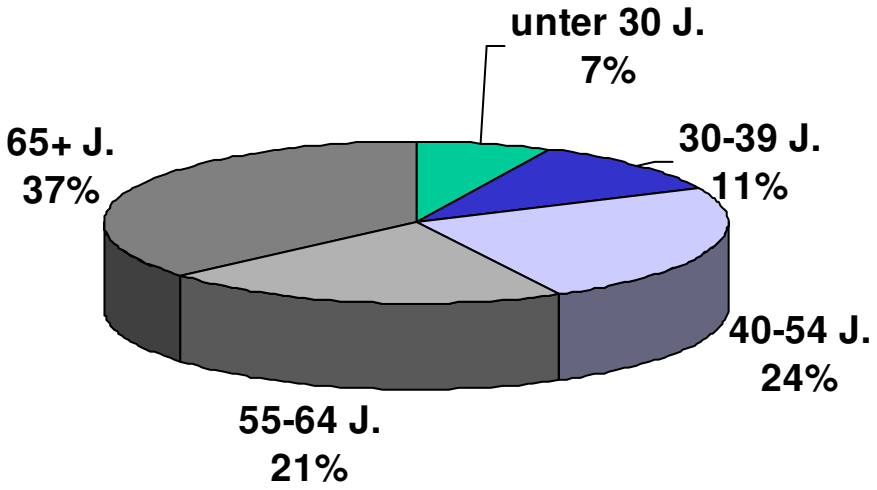
Wien Klin. Wochenschr (1999)

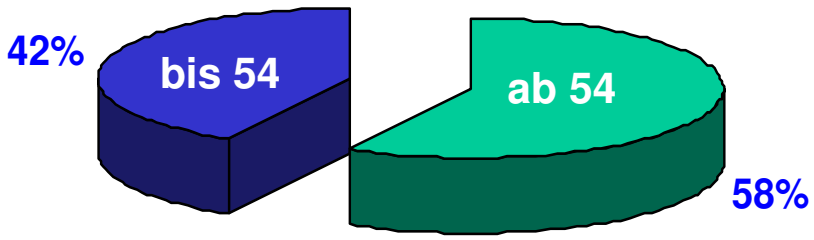
Verordnungsrate Psychopharmaka



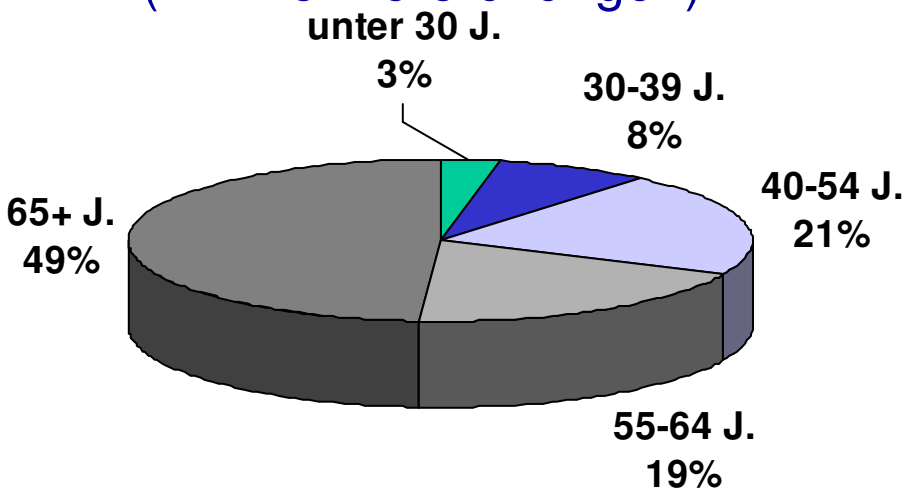
Psychopharmaka

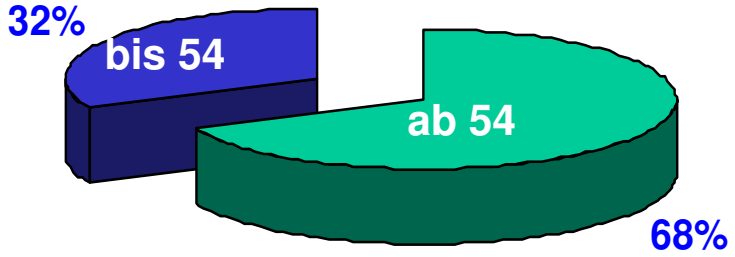
Alterstruktur Männer
(11 Mio. Verordnungen)





Alterstruktur Frauen
(24 Mio. Verordnungen)





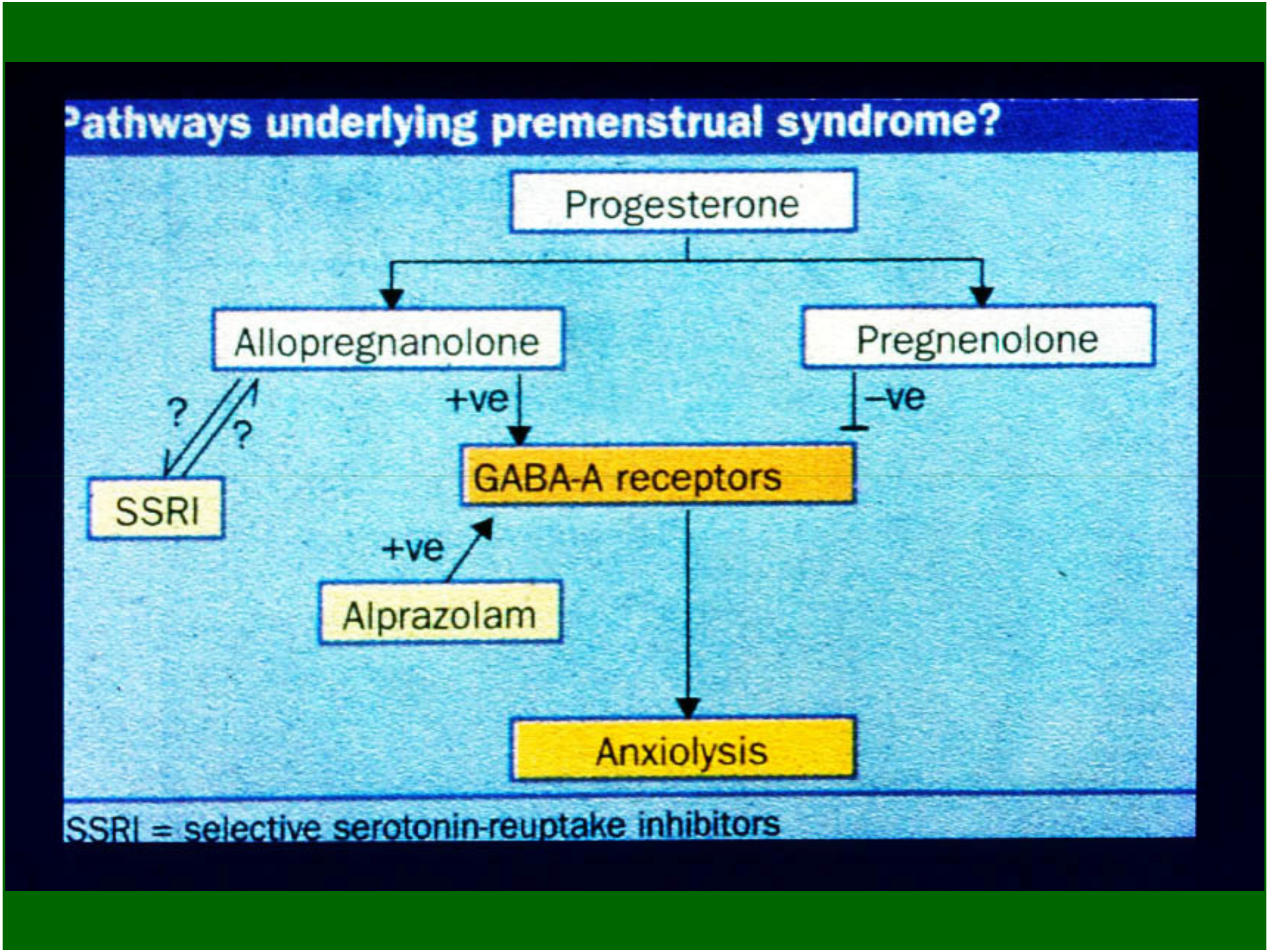
Quelle: IMS Health, VIP

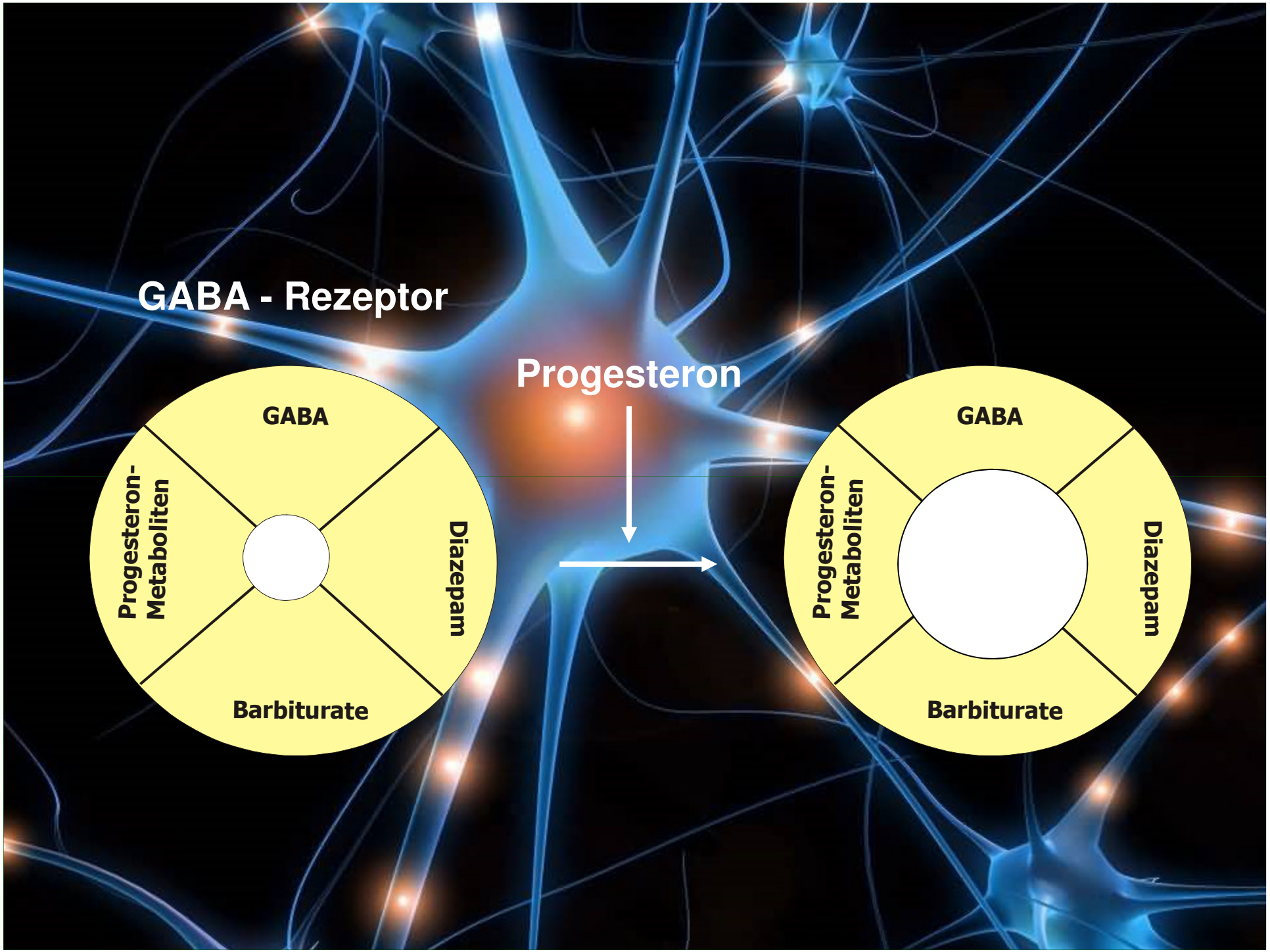
11% bis zum 40.Lebensjahr

OBSTETRICS & GYNECOLOGY

Volume 90 November 1997 Number 5

Progesterone Metabolite Allopregnanolone in Women With Premenstrual Syndrome


Pathways underlying premenstrual syndrome?
Progesterone
Allopregnanolone
Pregnenolone
+ve
–ve
?
?
SSRI
GABA-A receptors
+ve
Alprazolam
Anxiolysis
SSRI = selective serotonin-reuptake inhibitors


GABA - Rezeptor
Progesteron
GABA
Progesteron-Metaboliten
Diazepam
Barbiturate
GABA
Progesteron-Metaboliten
Diazepam
Barbiturate

PERGAMON

Psychoneuroendocrinology 28 (2003) 419–445

PNEC

www.elsevier.com/locate/psyneuen

Effects of hormone replacement therapy on perceptual and cognitive event-related potentials in menopausal insomnia

Peter Anderer [a,*], Heribert V. Semlitsch [a], Bernd Saletu [a], Gerda Saletu-Zyhlarz [a], Doris Gruber [b], Markus Metka [b], Johannes Huber [b], Thomas Gräser [c], Michael Oettel [c]

Available online at www.sciencedirect.com
SCIENCE DIRECT®
Maturitas 51 (2005) 254–269
MATURITAS
THE EUROPEAN MENOPAUSE JOURNAL
www.elsevier.com/locate/maturitas

Age-related cognitive decline in the menopause: effects of hormone replacement therapy on cognitive event-related potentials

Peter Anderer[a,*], Bernd Saletu[a], Doris Gruber[b], Leopold Linzmayer[a], Heribert V. Semlitsch[a], Gerda Saletu-Zyhlarz[a], Nadja Brandstätter[a], Markus Metka[b], Johannes Huber[b]

ORIGINAL RESEARCH ARTICLE

Clin Drug Invest 2008; 28 (12): 783-791
1173-2563/08/0012-0783/$48.00/0

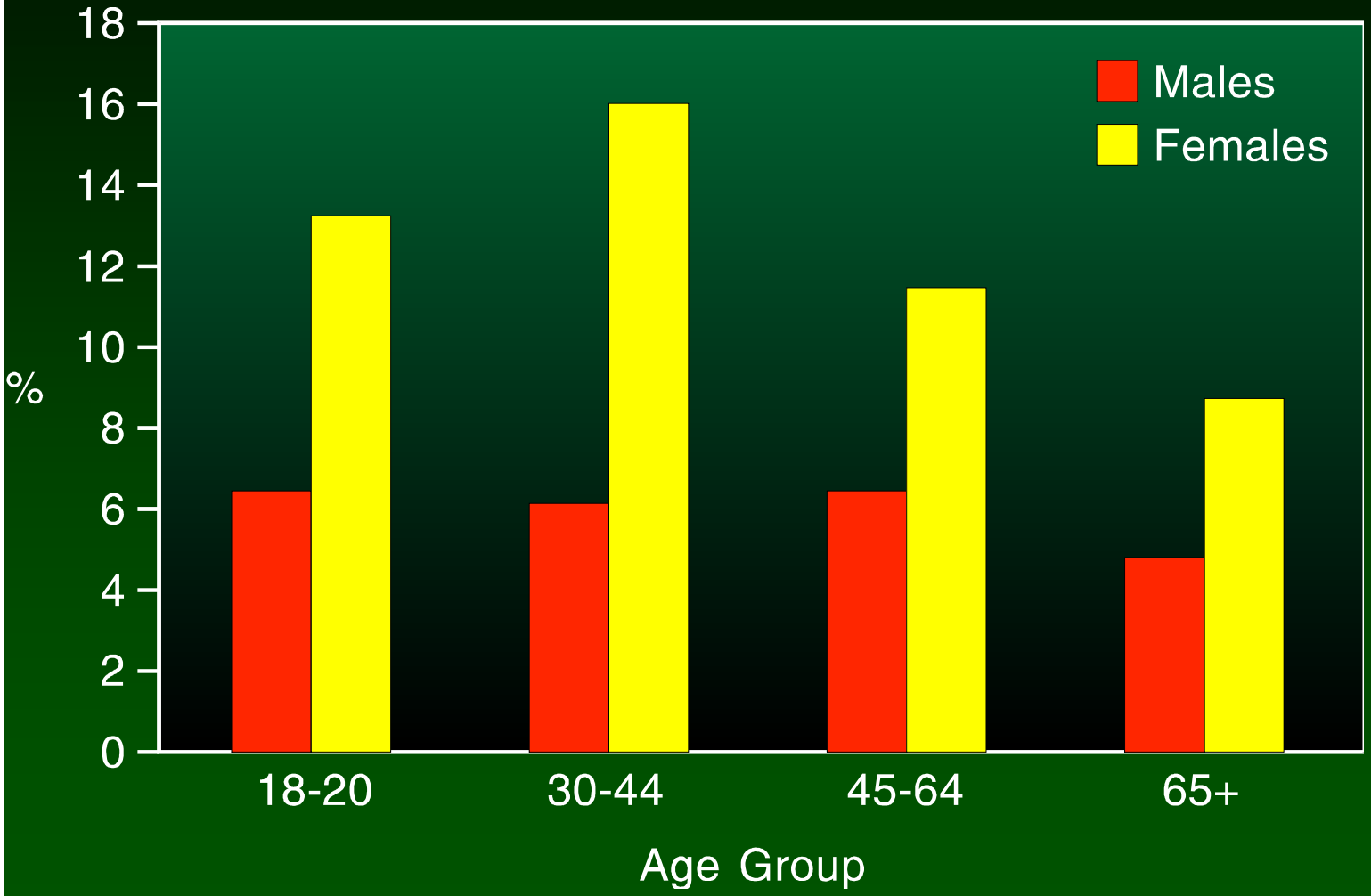
© 2008 Adis Data Information BV. All rights reserved.

Effect of an Oral Contraceptive with Chlormadinone Acetate on Depressive Mood

Analysis of Data from Four Observational Studies

Johannes C. Huber,[1] *Marie-Luise S. Heskamp*[2] and *Georg A.K. Schramm*[2]

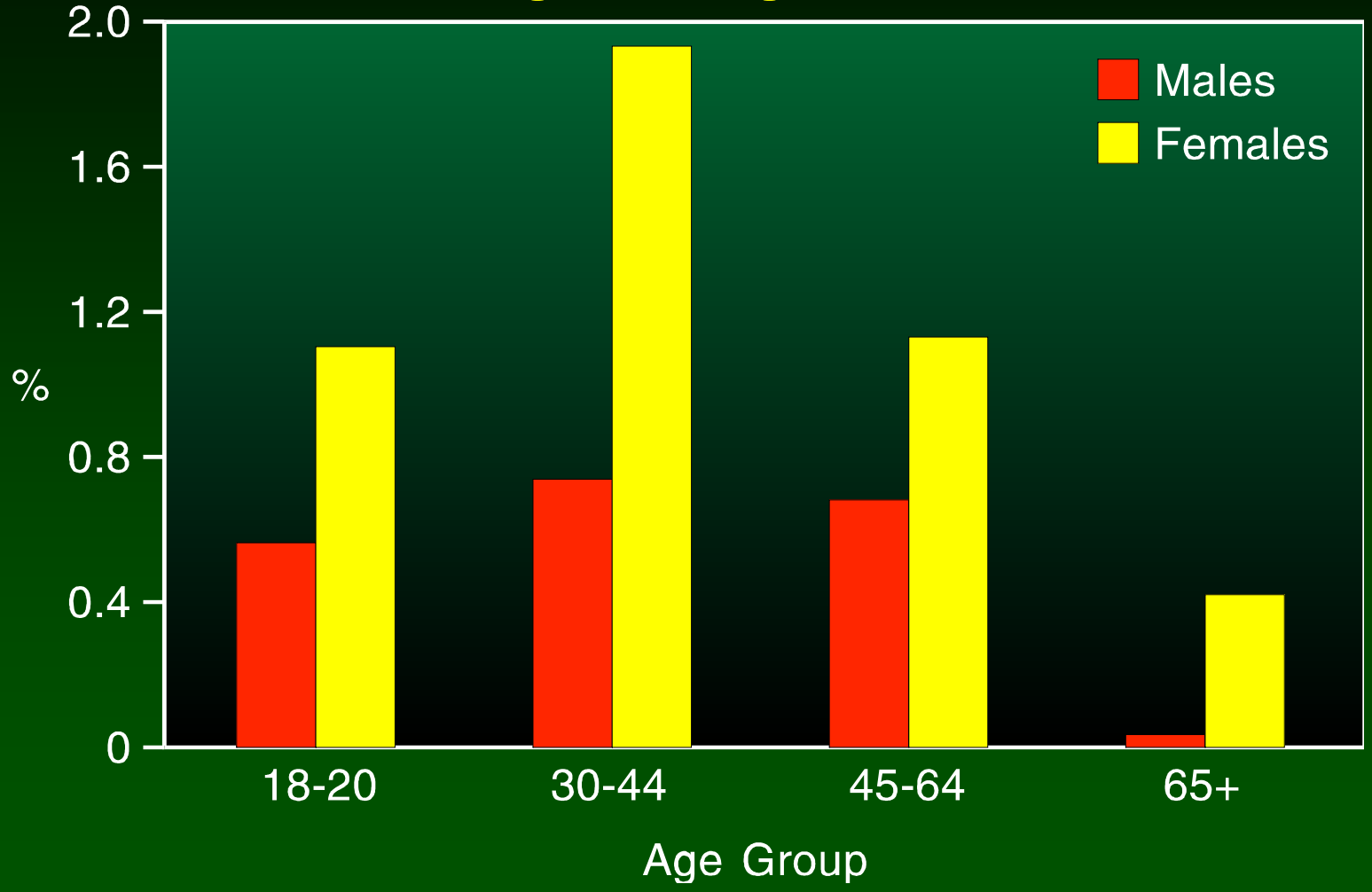
One-year prevalence of phobia by age and gender (ECA)



This slide shows the one year prevalence of phobia by age and gender and the data show impressively the difference between males and females in this mood disease

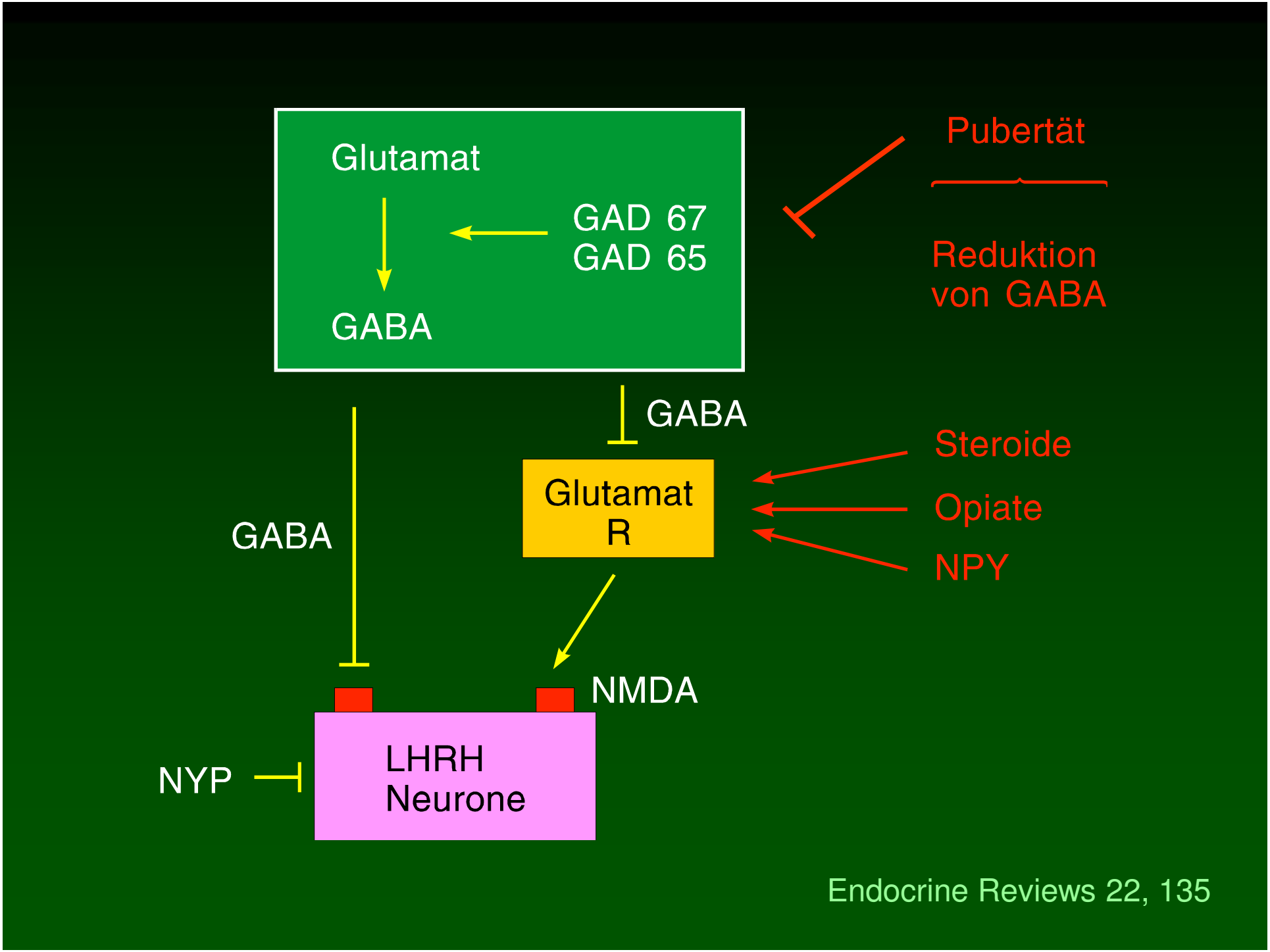
Goldman M., Women and Health, Academic Press 2000

One-year prevalence of panic by age and gender (ECA)



There is also a significant difference in panic attacks between males and females and the gender specific difference can be observed already in early adolescence and during the transition from puberty to menopause

Goldman M., Women and Health, Academic Press 2000


Glutamat
GAD 67
GAD 65
GABA
Pubertät
Reduktion
von GABA
GABA
GABA
Steroide
Glutamat
R
Opiate
NPY
NMDA
NYP
LHRH
Neurone
Endocrine Reviews 22, 135

ELSEVIER

Maturitas 61 (1–2) (2008) 171–180

MATURITAS
JOURNAL OF THE CLIMACTERIC & POSTMENOPAUSE

Reprint of Classification and pharmacology of progestins

Adolf E. Schindler[a,*], Carlo Campagnoli[b], René Druckmann[c], Johannes Huber[d], Jorge R. Pasqualini[e], Karl W. Schweppe[f], Jos H. H. Thijssen[g]

Maturitas 62 (2009) 326–329

Contents lists available at ScienceDirect

Maturitas

journal homepage: www.elsevier.com/locate/maturitas

Review

The dialectic role of progesterone

Johannes C. Huber*, Johannes Ott

REVIEW

Endocrine-Related Cancer (2006) **13** 717–738

Progesterone metabolites in breast cancer

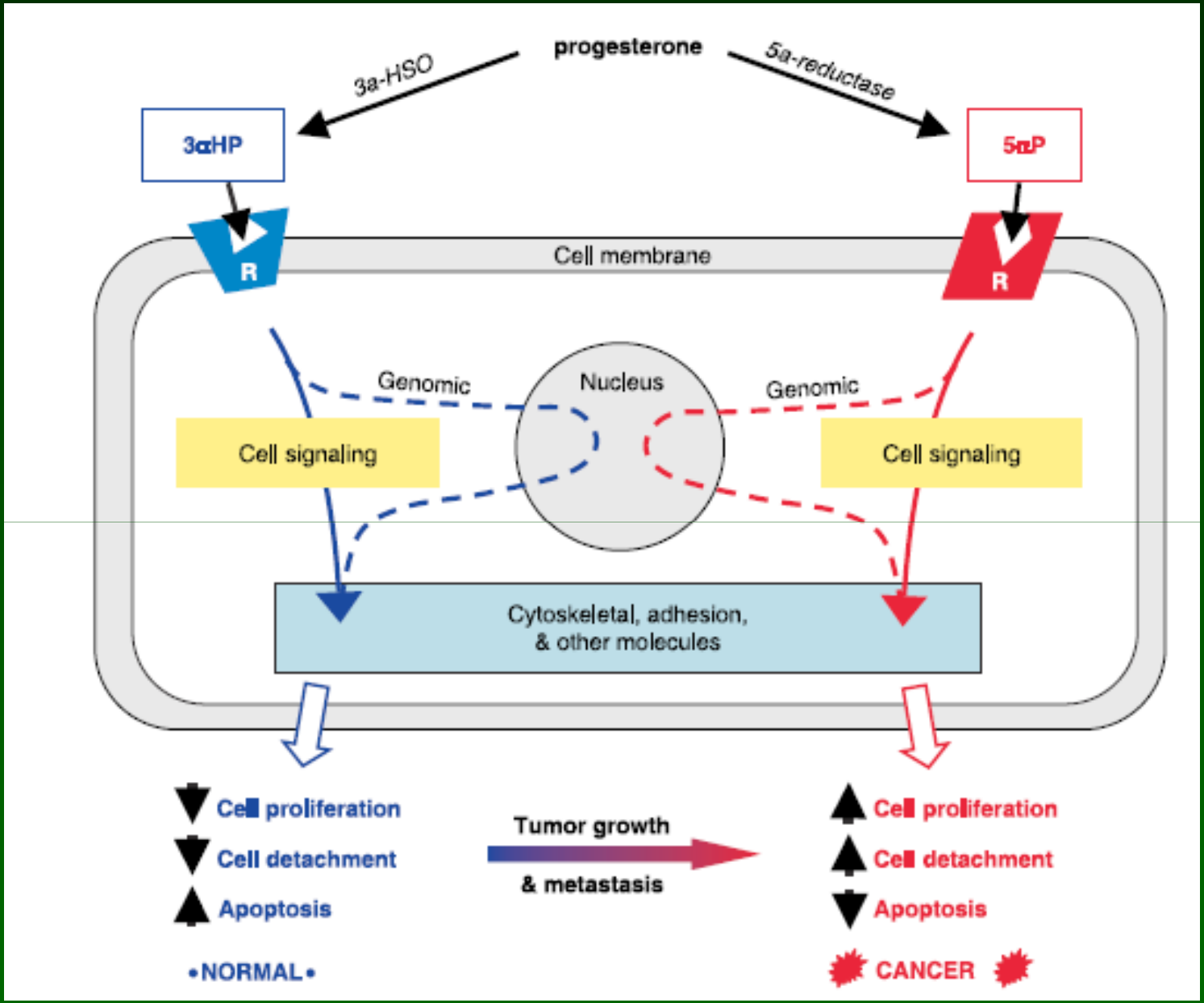
John P Wiebe

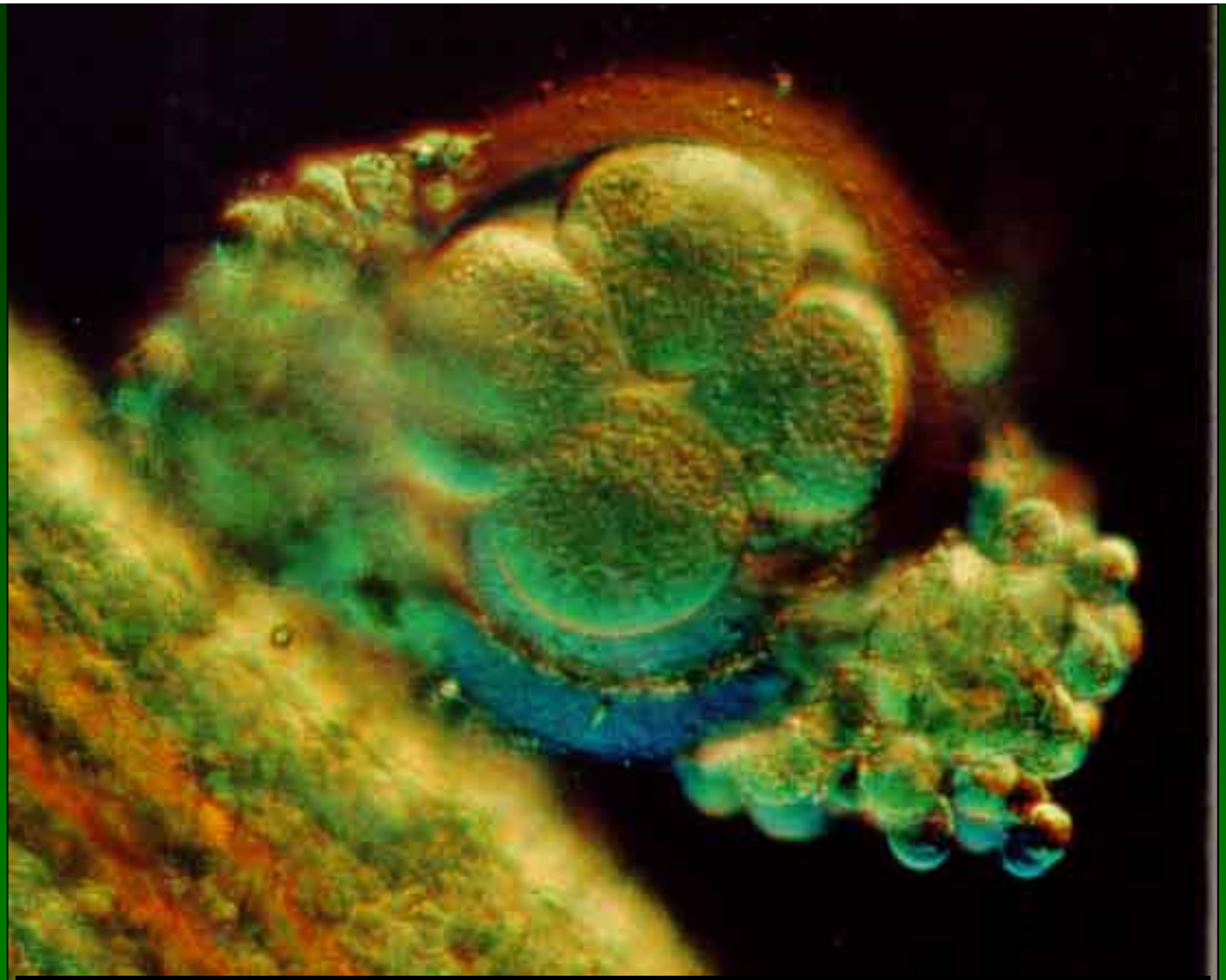
Department of Biology, Hormonal Regulatory Mechanisms Laboratory, University of Western Ontario, London, Ontario, Canada N6A 5B7

(Requests for offprints should be addressed to J P Wiebe; Email: jwiebe@uwo.ca)

Abstract

In the 70 years since progesterone (P) was identified in corpus luteum extracts, its metabolism has been examined extensively in many tissues and cell lines from numerous species. In addition to the reproductive tissues and adrenals, every other tissue that has been investigated appears to have one or more P-metabolizing enzyme, each of which is specific for a particular site on the P molecule. In the past, the actions of the P metabolizing enzymes generally have been equated to a means of reducing the P concentration in the tissue microenvironment, and the products have been dismissed


progesterone
3a-HSO
5a-reductase
3αHP
5αP
R
R
Cell membrane
Genomic
Nucleus
Genomic
Cell signaling
Cell signaling
Cytoskeletal, adhesion,
& other molecules
Cell proliferation
Cell detachment
Apoptosis
•NORMAL•
Tumor growth
& metastasis
Cell proliferation
Cell detachment
Apoptosis
CANCER



Paria, B.C., et. Al
Embryo Implantation Requires Estrogen-Directed Uterine Preparation and Catecholestrogen-Mediated Embryonic Activation
Advances in Pharmacology, Vol. 42, pp. 840-842

The New England Journal of Medicine

Review Article

Mechanisms of Disease

Production and Actions of Estrogens

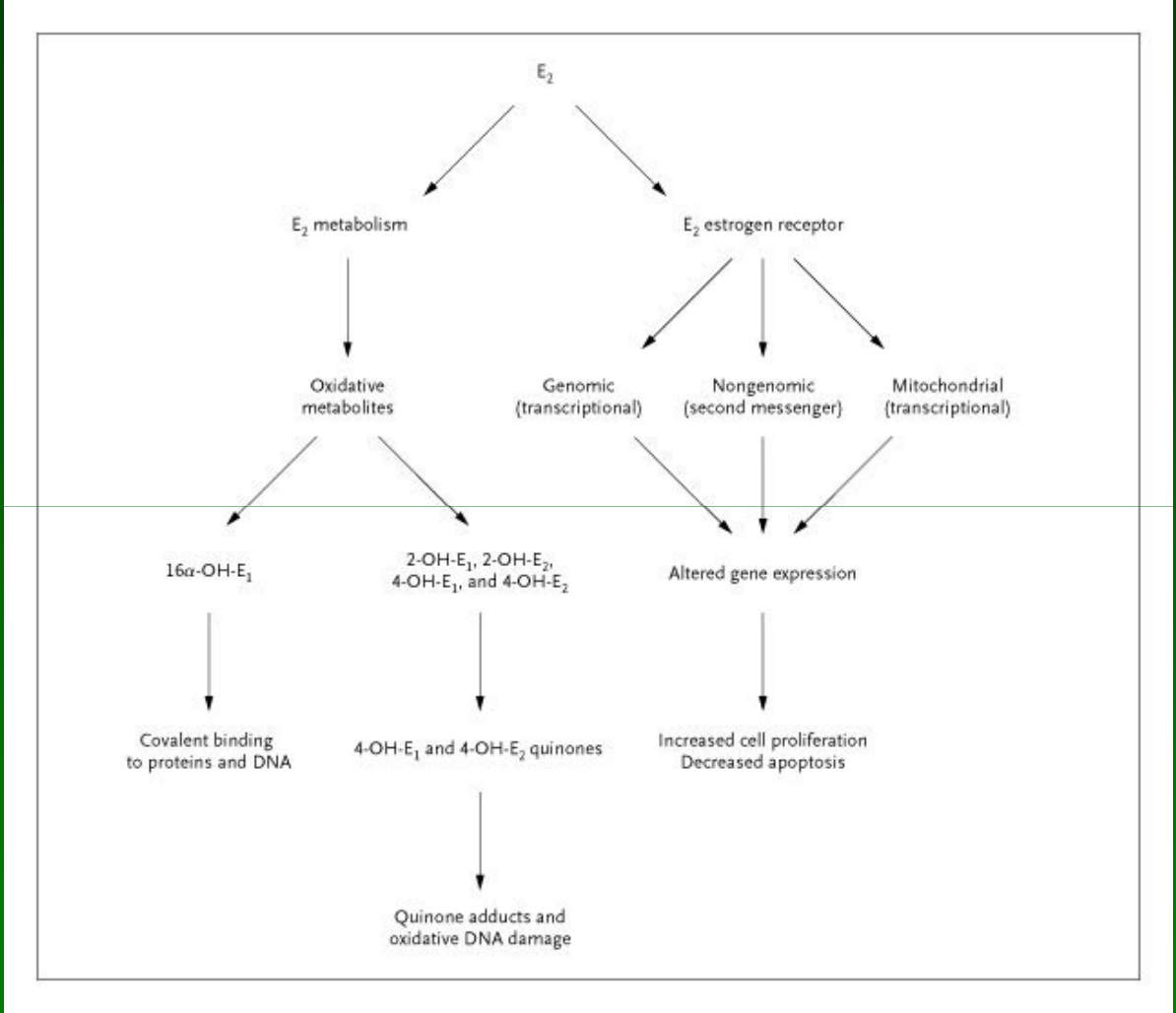
Christian J. Gruber, M.D., Walter Tschugguel, M.D., Christian Schneeberger, Ph.D., and Johannes C. Huber, M.D., Ph.D.

tase monooxygenase enzyme complex that is present in the smooth endoplasmic reticulum and functions as a demethylase. In three consecutive hydroxylating reactions, estrone and estradiol are formed from their obligatory precursors androstenedione and testosterone, respectively (Fig. 1). The final hydroxylating step in aromatization does not require enzymatic action and is not product sensitive.

Several plant compounds have structural and functional similarities to estrogens and are therefore referred to as phytoestrogens (Fig. 1). Genistein and daidzein are isoflavonoids found in soybeans and clo-

N Engl J Med 346:340, January 31, 2002

Pathways for Estrogen Carcinogenesis



The NEW ENGLAND JOURNAL of MEDICINE

Journal of Photochemistry and Photobiology B: Biology 92 (2008) 38–41

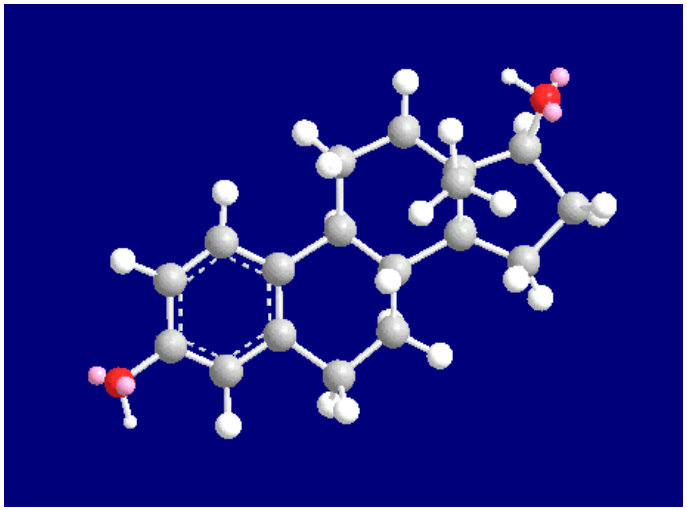
Contents lists available at ScienceDirect

Journal of Photochemistry and Photobiology B: Biology

journal homepage: www.elsevier.com/locate/jphotobiol

Photo-induced electron emission from 17β-estradiol and progesterone and possible biological consequences

Nikola Getoff [a,*], Johannes Hartmann [a], Johannes C. Huber [b], Ruth Maria Quint [a]



In Vivo. 2010 Sep-Oct;24(5):727-33.

Metabolite formation of 17alpha-hydroxyprogesterone as a consequence of e-(aq)-emission and progesterone effect regarding cancer.

Getoff N, Danielova I, Hartmann J, Schittl H, Gerschpacher M, Ying S, Quint R, Huber JC.

In Vivo. 2010 Jul-Aug;24(4):535-41.

Mutual interaction of 17beta-estradiol and progesterone: electron emission. Free radical effect studied by experiments in vitro.

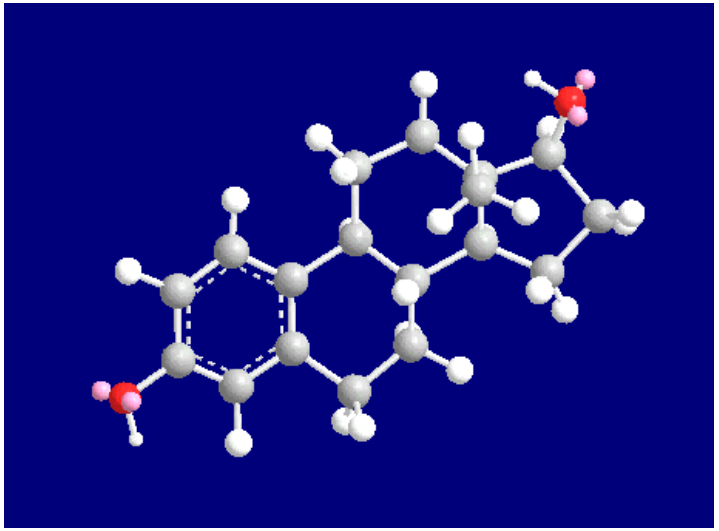
Getoff N, Schittl H, Hartmann J, Gerschpacher M, Ying S, Danielova I, Huber JC.

Gynecological Endocrinology, 2010; Early Online, 1–8

informa
healthcare

Electron emission and product analysis of estrone: progesterone interactions studied by experiments *in vitro*

MARION GERSCHPACHER[1], NIKOLA GETOFF[2], JOHANNES HARTMANN[2], HEIKE SCHITTL[2], IREN DANIELOVA[1], SHAOBIN YING[2], JOHANNES C. HUBER[1], & RUTH M. QUINT[2]

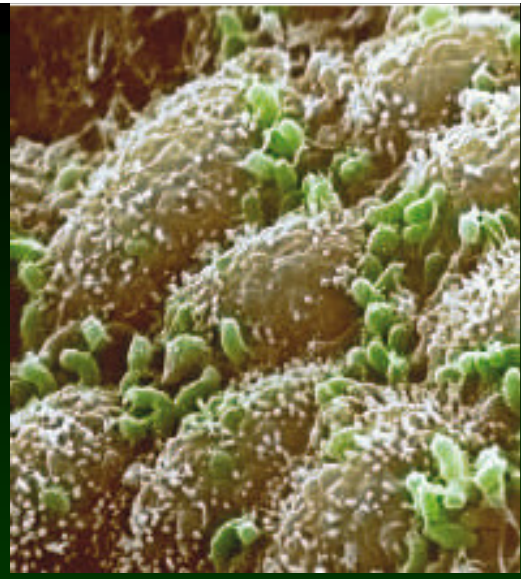


LETTER

doi:10.1038/nature09387

Osteoclast differentiation factor RANKL controls development of progestin-driven mammary cancer

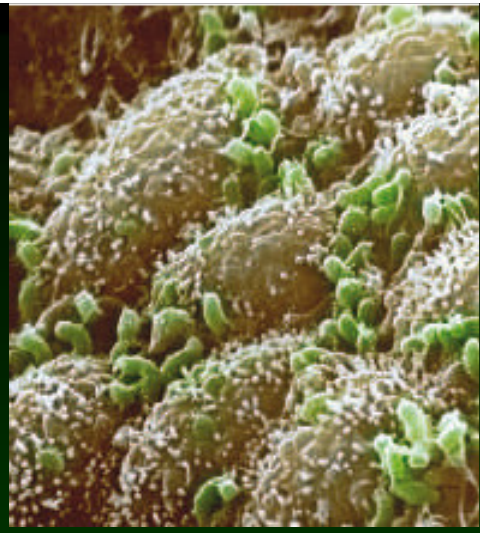
Daniel Schramek[1]*, Andreas Leibbrandt[1]*, Verena Sigl[1], Lukas Kenner[2], John A. Pospisilik[1], Heather J. Lee[3], Reiko Hanada[1], Purna A. Joshi[4], Antonios Aliprantis[5], Laurie Glimcher[5], Manolis Pasparakis[6], Rama Khokha[4], Christopher J. Ormandy[3], Martin Widschwendter[7], Georg Schett[8] & Josef M. Penninger[1]



J Steroid Biochem.):217-29.

Studies on the role of intestinal bacteria in metabolism of synthetic and natural steroid hormones.

Adlercreutz H, Pulkkinen MO, Hämäläinen EK, Korpela JT



J Steroid Biochem. 26(2):235-9.

Influence of an estrone-desulfating intestinal flora on the enterohepatic circulation of estrone-sulfate in rats.

van Eldere J, Parmentier G, Robben J, Eyssen H.

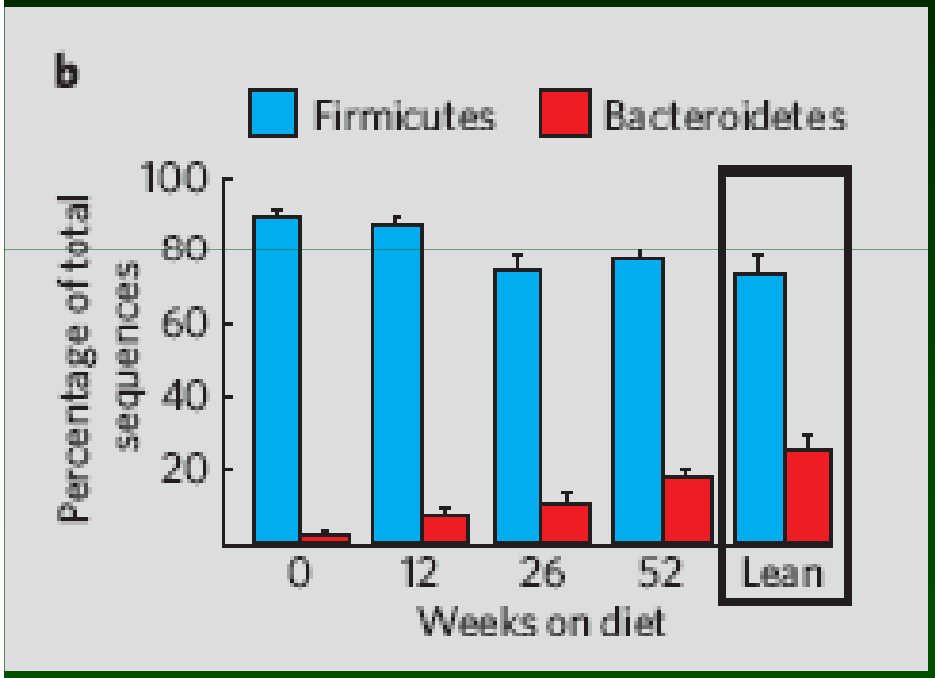
Vol 444|21/28 December 2006 nature

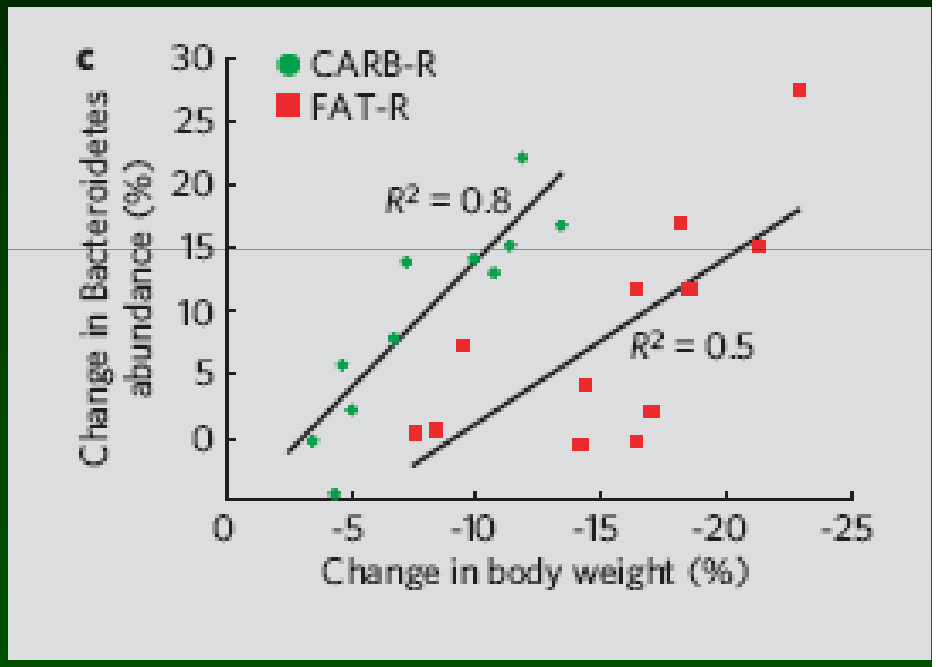
NEWS & VIEWS

PHYSIOLOGY

Obesity and gut flora

Matej Bajzer and Randy J. Seeley





MICROBIAL ECOLOGY

Human gut microbes associated with obesity

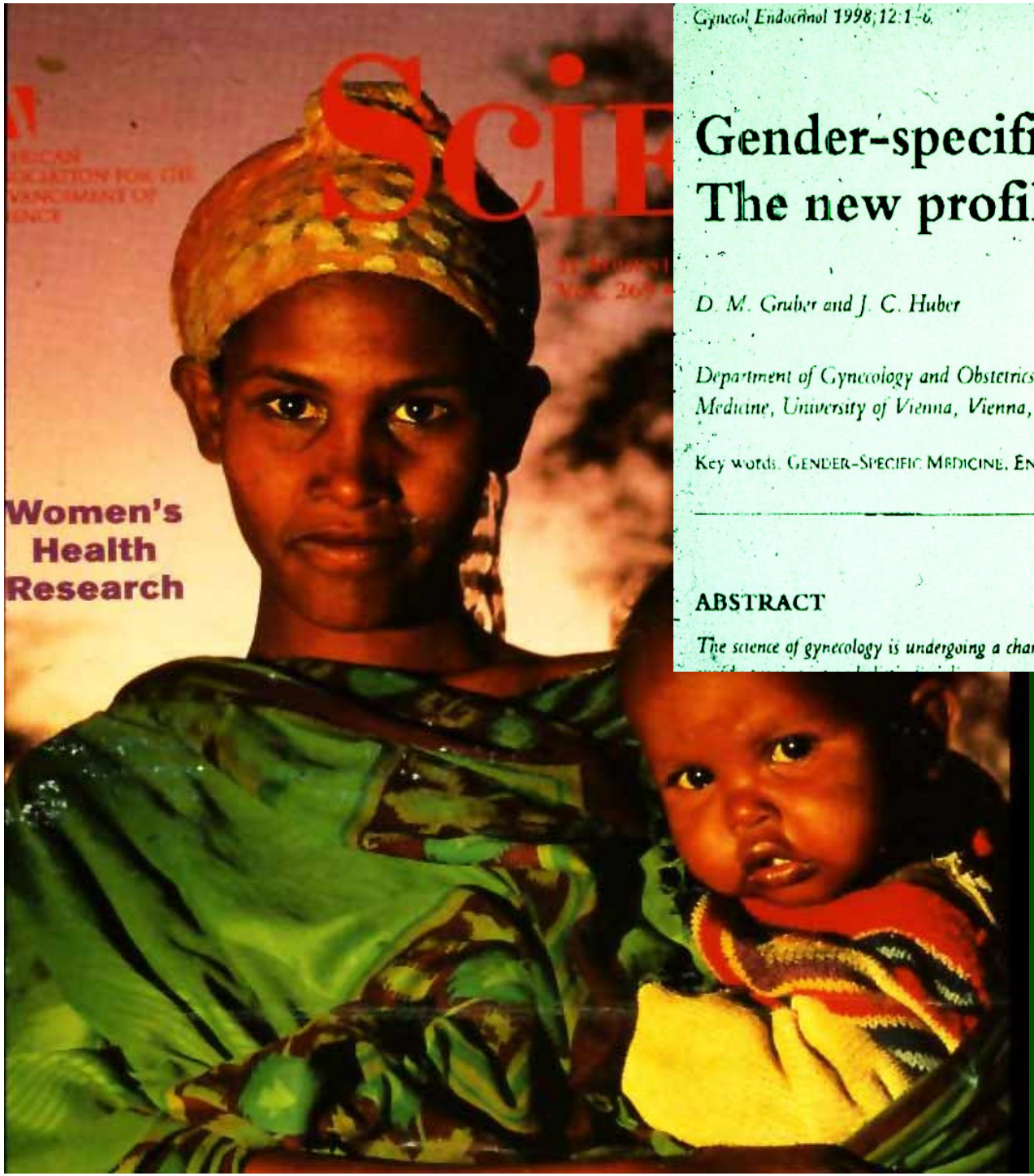
Vol 444|21/28 December 2006|doi:10.1038/nature05414 nature

ARTICLES

An obesity-associated gut microbiome with increased capacity for energy harvest

Peter J. Turnbaugh[1], Ruth E. Ley[1], Michael A. Mahowald[1], Vincent Magrini[2], Elaine R. Mardis[1,2] & Jeffrey I. Gordon[1]

The worldwide obesity epidemic is stimulating efforts to identify host and environmental factors that affect energy balance. Comparisons of the distal gut microbiota of genetically obese mice and their lean littermates, as well as those of obese and lean human volunteers have revealed that obesity is associated with changes in the relative abundance of the two dominant bacterial divisions, the Bacteroidetes and the Firmicutes. Here we demonstrate through metagenomic and biochemical analyses that these changes affect the metabolic potential of the mouse gut microbiota. Our results indicate that the obese microbiome has an increased capacity to harvest energy from the diet. Furthermore, this trait is transmissible: colonization of germ-free mice with an 'obese microbiota' results in a significantly greater increase in total body fat than colonization with a 'lean microbiota'. These results identify the gut microbiota as an additional contributing factor to the pathophysiology of obesity.



Gynecol Endocrinol 1998;12:1-6.

Gender-specific medicine. The new profile of gynecology

D. M. Gruber and J. C. Huber

Department of Gynecology and Obstetrics, Division of Gynecological Endocrinology and Reproductive Medicine, University of Vienna, Vienna, Austria

Key words. GENDER-SPECIFIC MEDICINE, ENDOCRINE SYSTEM, REPRODUCTION

ABSTRACT

The science of gynecology is undergoing a change and is

promoted the vaginal radical hysterectomy. Two