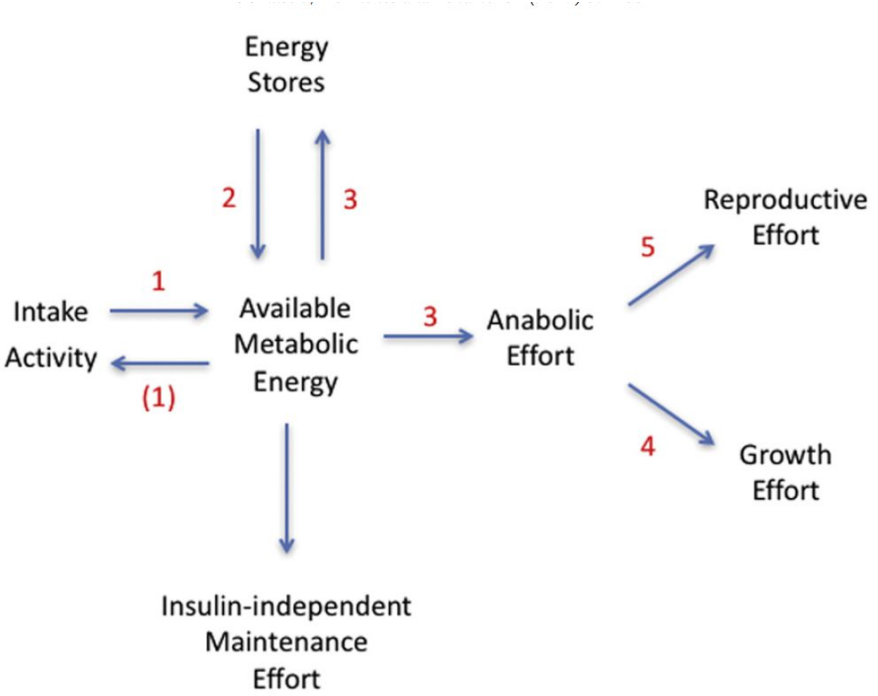
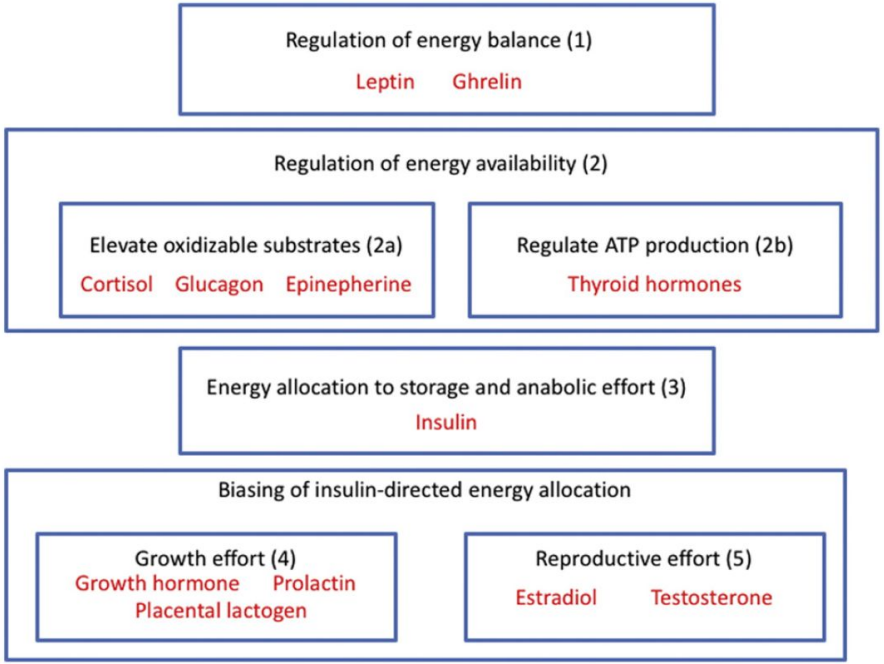
Ellison 2017, Hormones & Behaviour





energy flow underlying human life history energetics. Numbers associated with the arrows refer to the groups of hormon
ed with energy flow from available metabolic energy to activity indicates potentially weak or indirect hormonal regula

nal regulators associated with the pathways of energy flow specified in Fig. 1. Examples of major hormonal regulators in each categ

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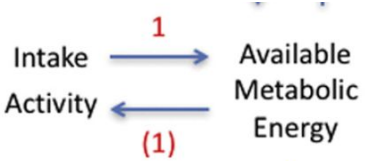
Regulation of energy balance (1)

Leptin Ghrelin



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Regulation of energy balance (1)

Leptin Ghrelin

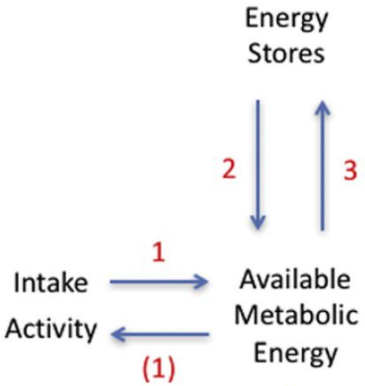
Regulation of energy availability (2)

Elevate oxidizable substrates (2a)

Cortisol Glucagon Epinepherine

Regulate ATP production (2b)

Thyroid hormones



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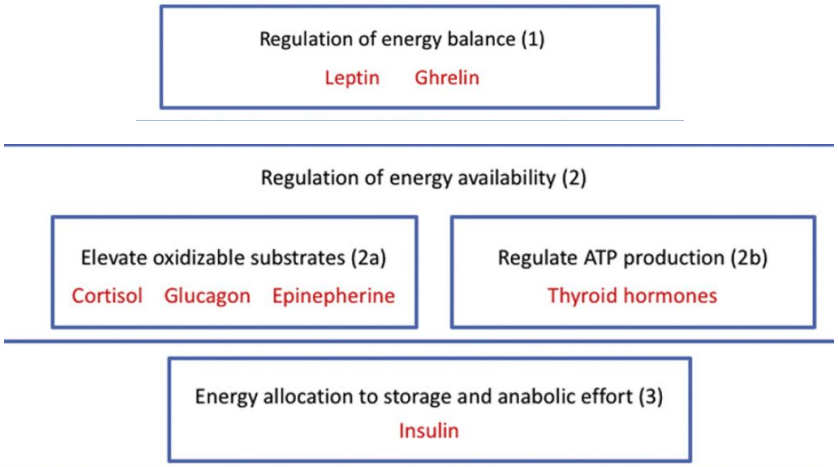

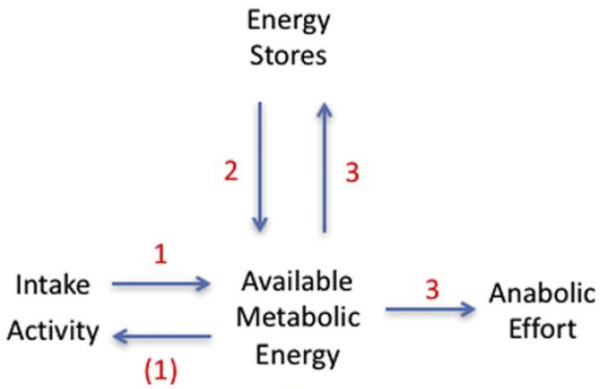

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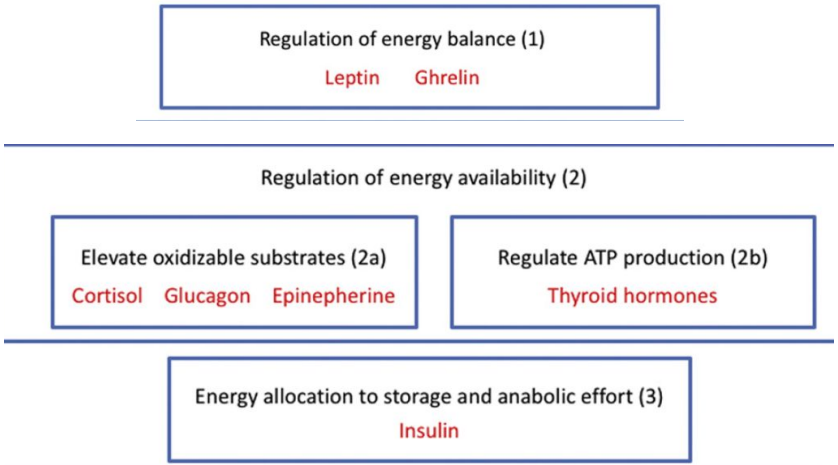

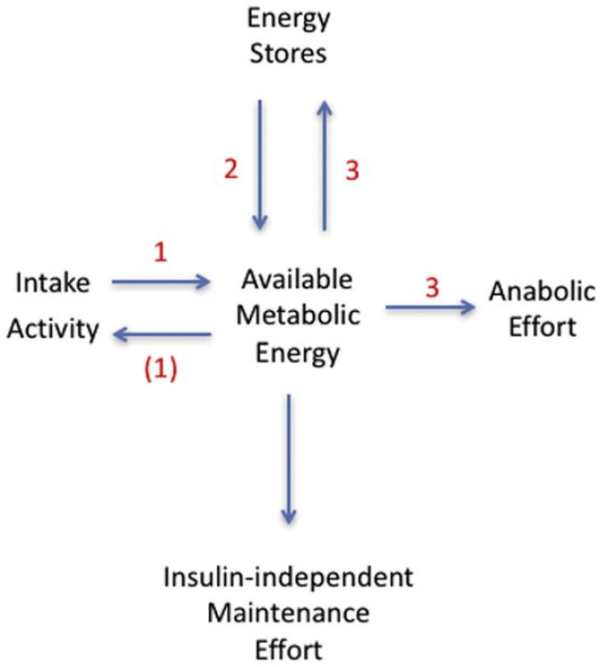

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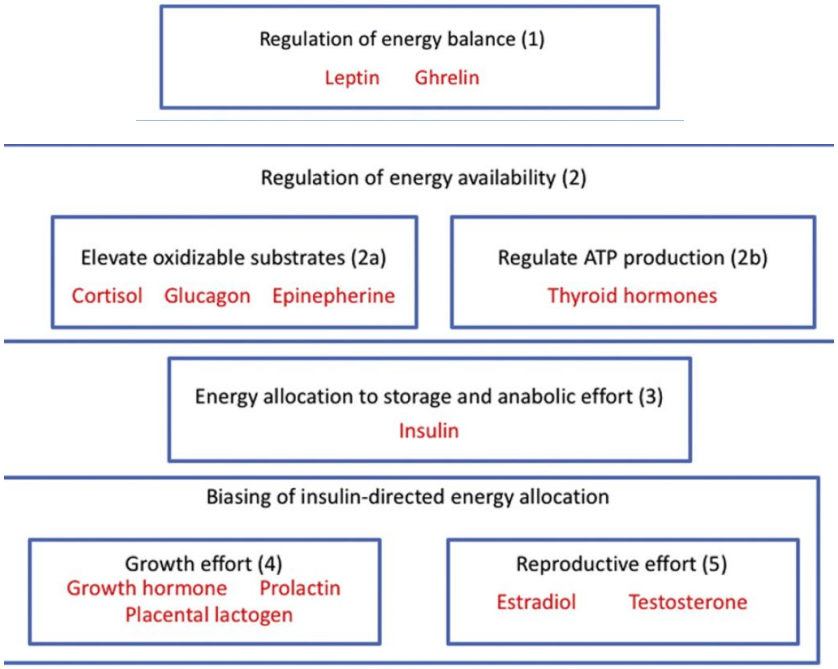
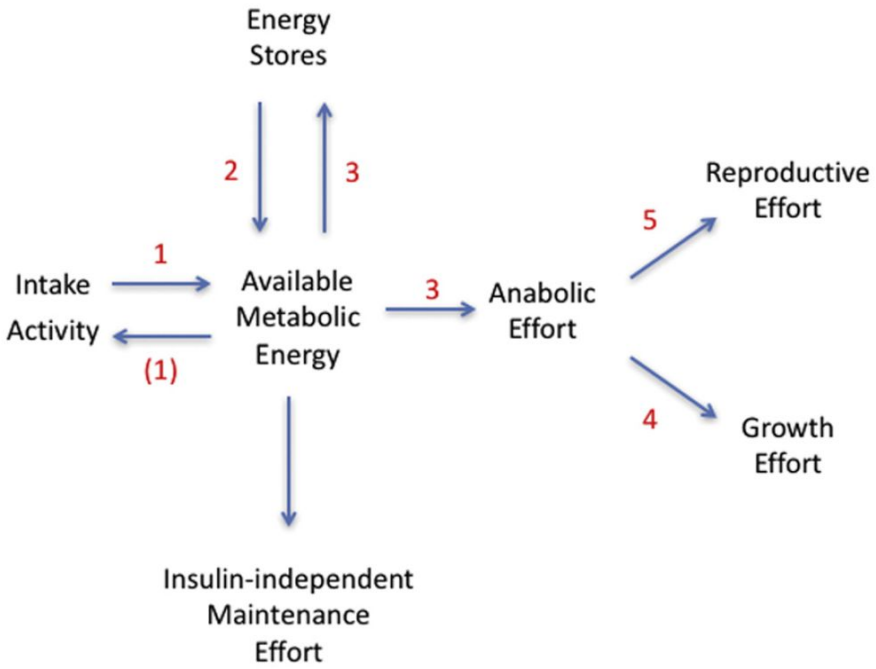
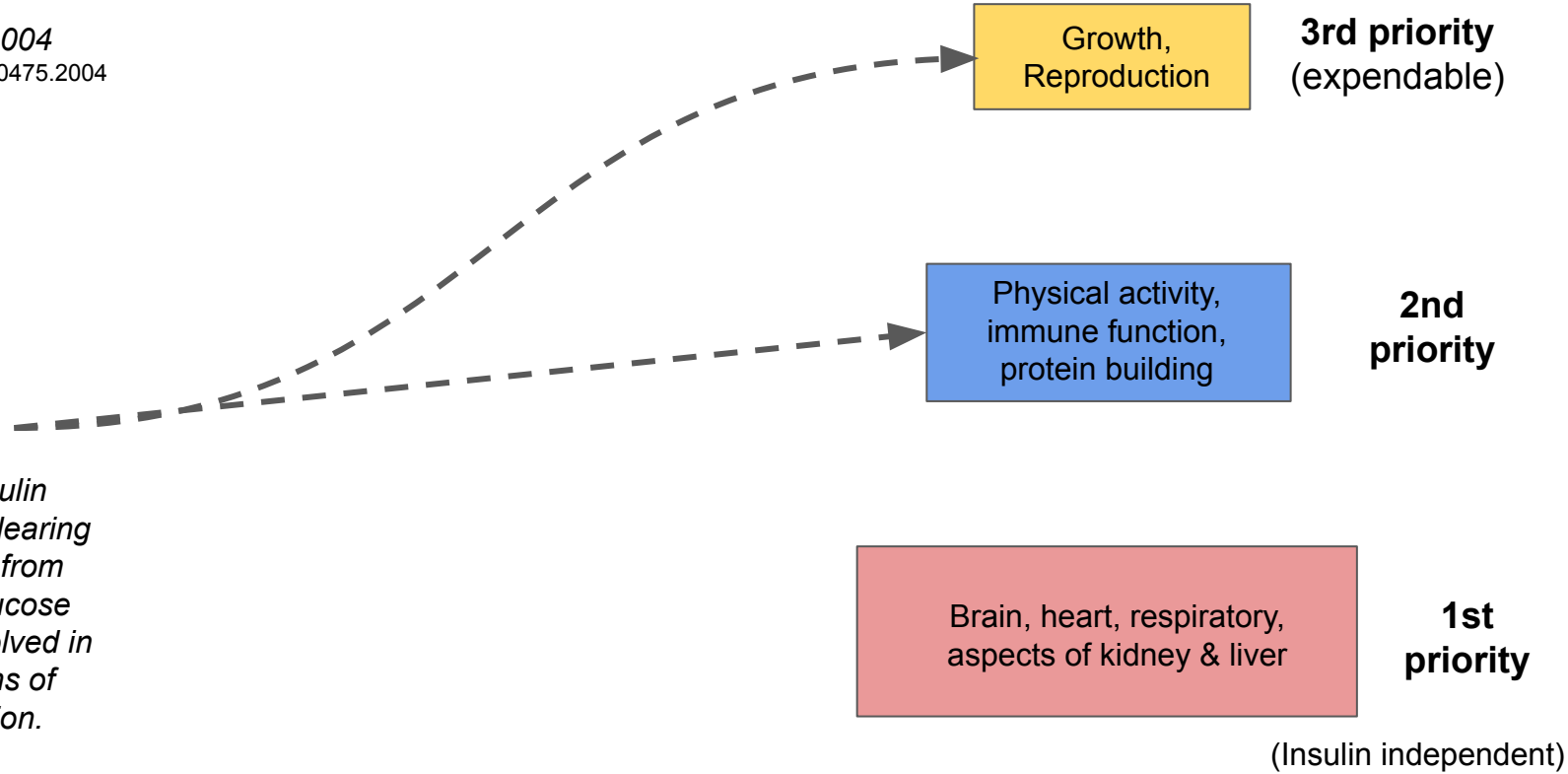




Schema based on Ellison 2017
http://dx.doi.org/10.1016/j.yhbeh.2016.09.006
Wade & Jones 2004
doi:10.1152/ajpregu.00475.2004



Function of insulin extends beyond clearing excess glucose from bloodstream (glucose homeostasis) involved in (nearly) all forms of energy allocation.

Schema based on Ellison 2017
http://dx.doi.org/10.1016/j.yhbeh.2016.09.006
Wade & Jones 2004
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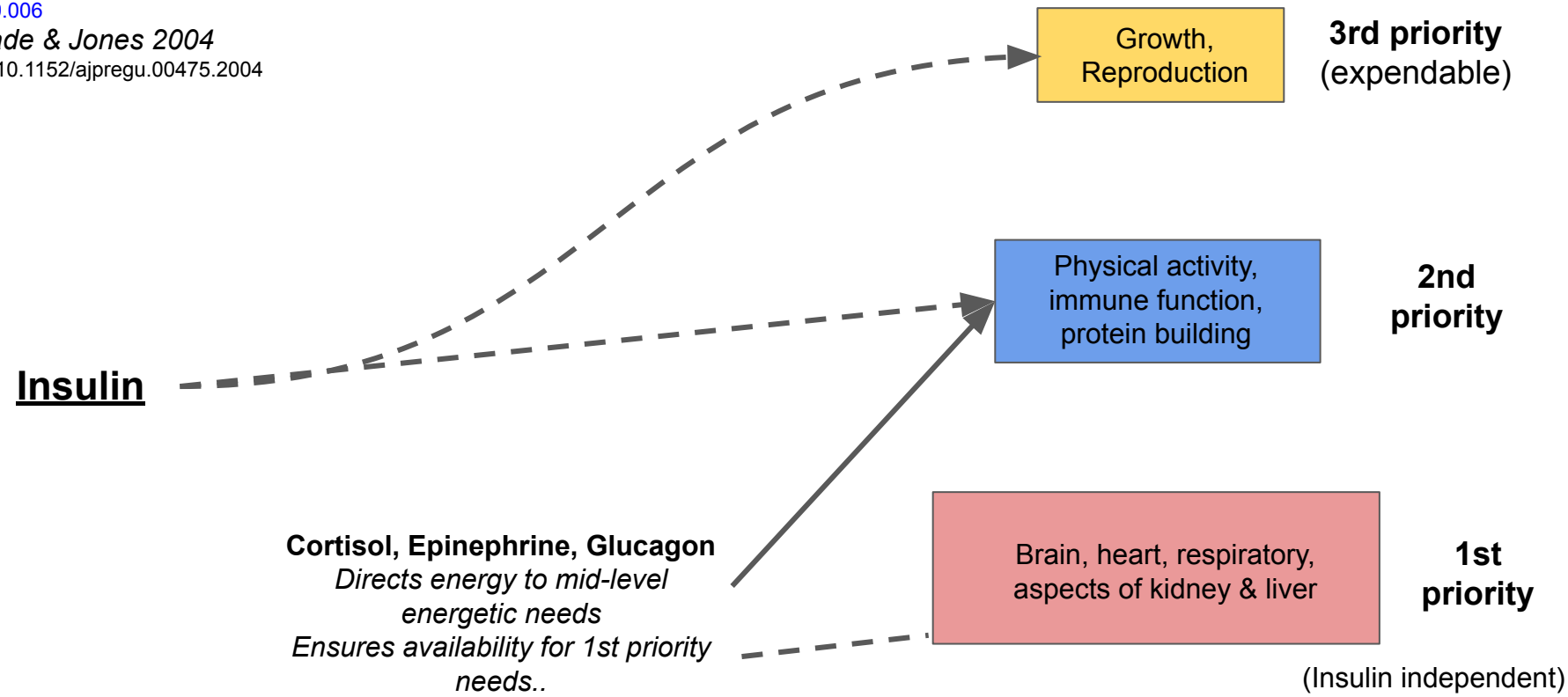

Schema based on Ellison 2017
http://dx.doi.org/10.1016/j.yhbeh.2016.09.006
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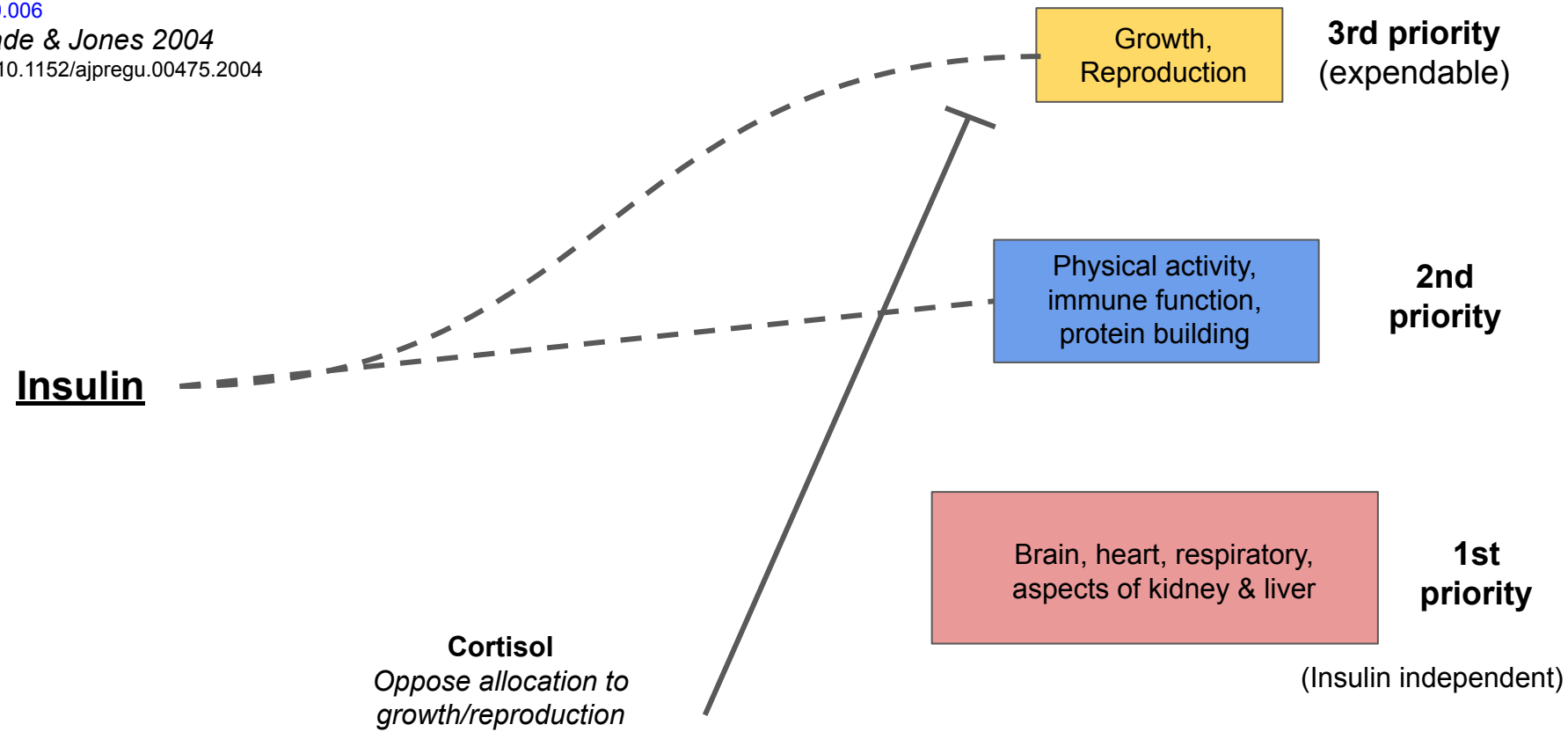

Schema based on Ellison 2017
http://dx.doi.org/10.1016/j.yhbeh.2016.09.006
Wade & Jones 2004
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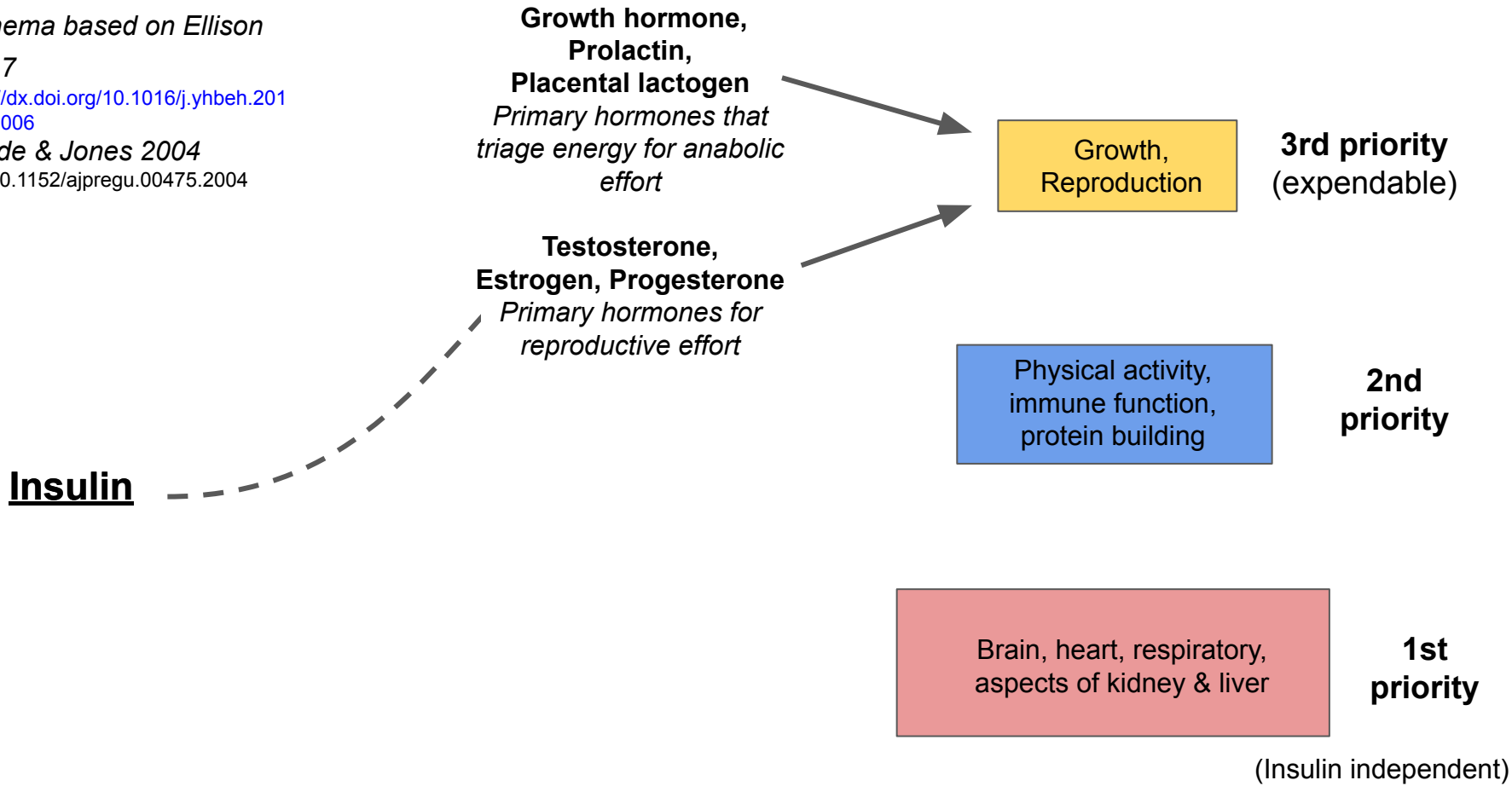

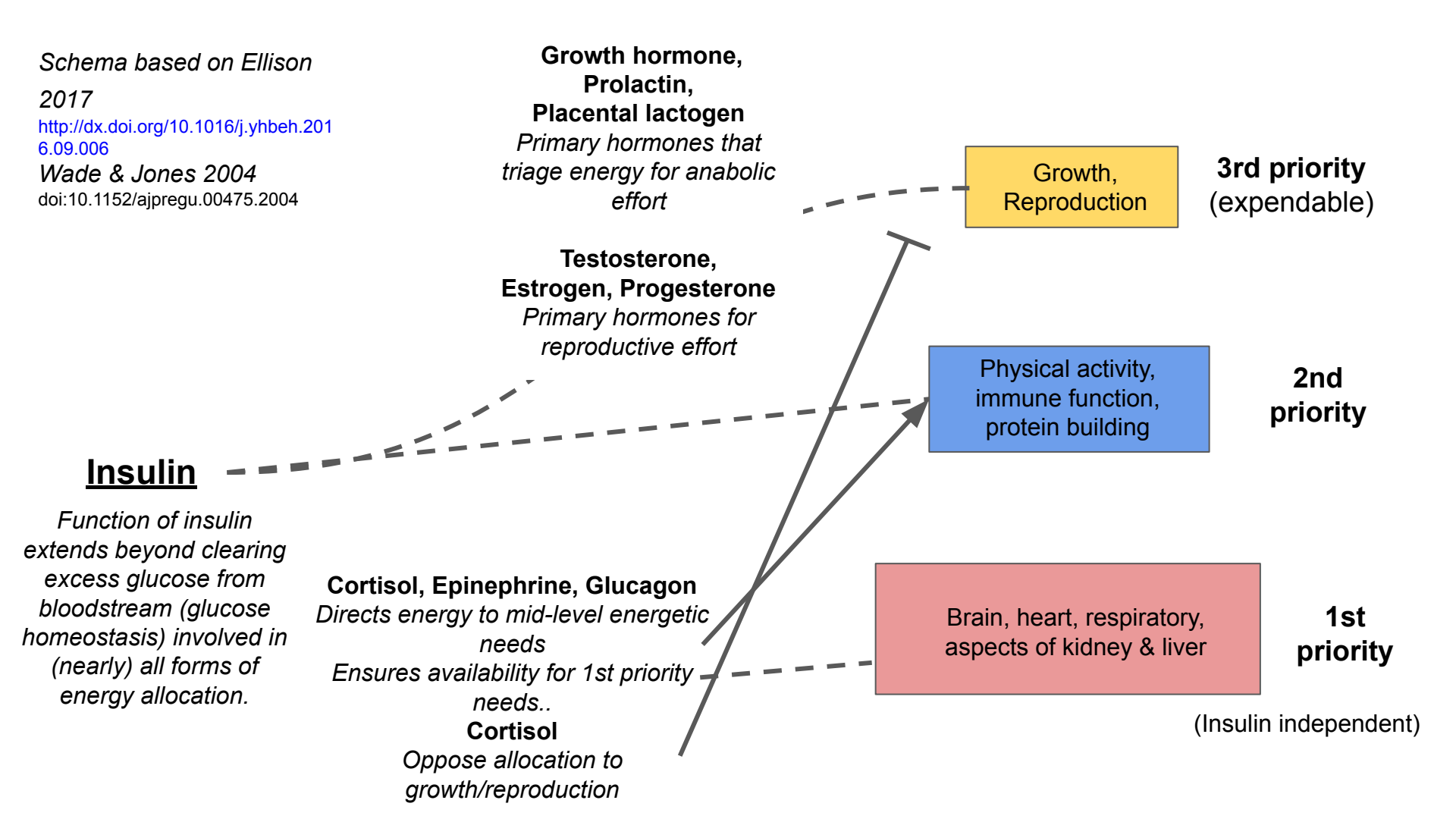
Schema based on Ellison 2017
http://dx.doi.org/10.1016/j.yhbeh.2016.09.006
Wade & Jones 2004
doi:10.1152/ajpregu.00475.2004
Growth hormone, Prolactin, Placental lactogen
Primary hormones that triage energy for anabolic effort
Testosterone, Estrogen, Progesterone
Primary hormones for reproductive effort
Insulin
Function of insulin extends beyond clearing excess glucose from bloodstream (glucose homeostasis) involved in (nearly) all forms of energy allocation.
Cortisol, Epinephrine, Glucagon
Directs energy to mid-level energetic needs
Ensures availability for 1st priority needs..
Cortisol
Oppose allocation to growth/reproduction
Growth, Reproduction
3rd priority (expendable)
Physical activity, immune function, protein building
2nd priority
Brain, heart, respiratory, aspects of kidney & liver
1st priority
(Insulin independent)

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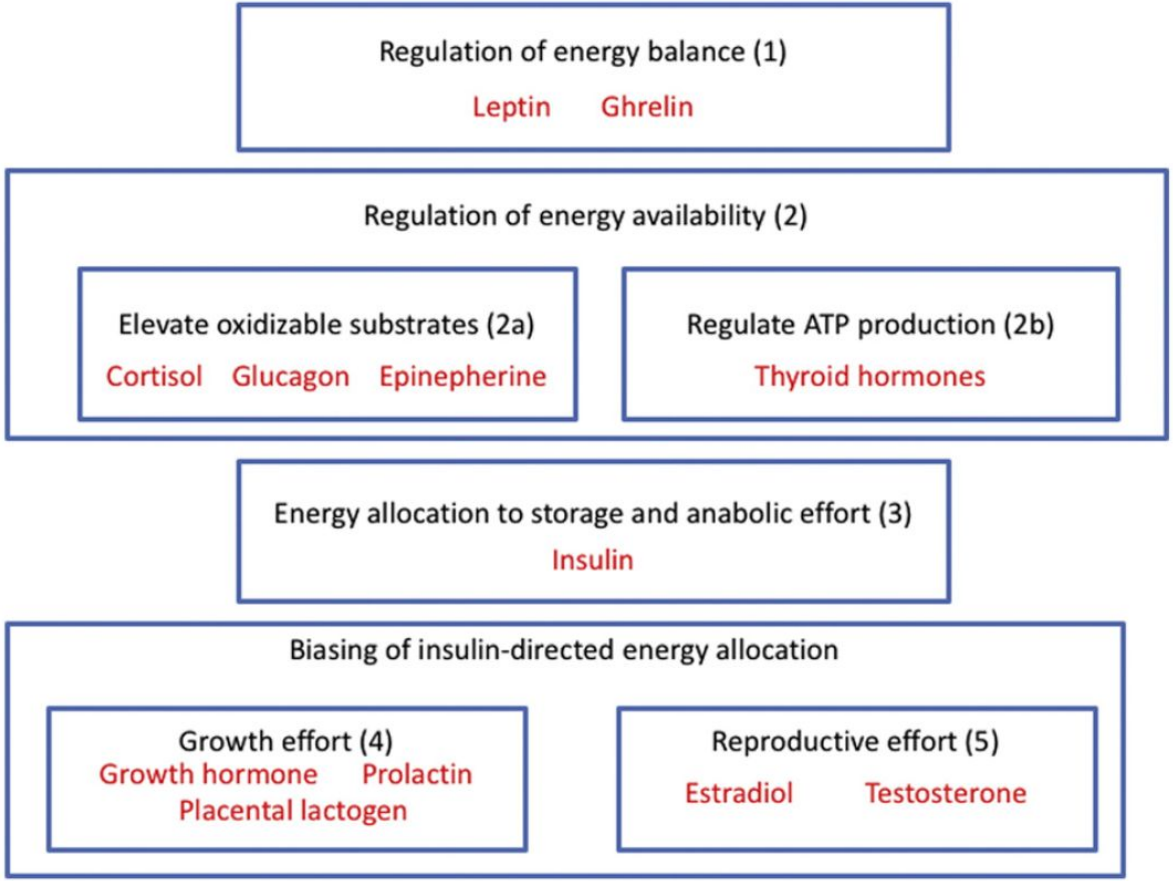

Fig. 2. Categories of hormonal regulators associated with the pathways of energy flow specified in Fig. 1. Examples of major hormonal regulators in each c elaborated upon in the text.

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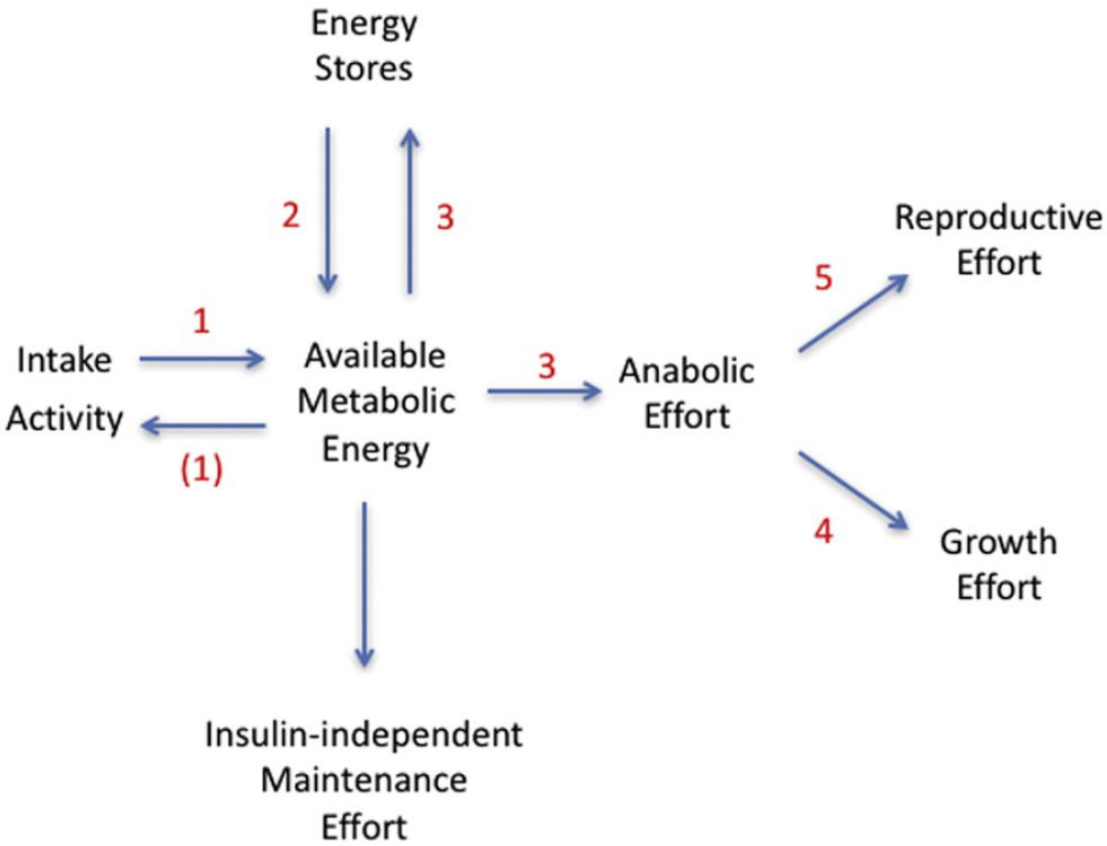

Fig. 1. The basic framework of energy flow underlying human life history energetics. Numbers associated with the arrows refer to the groups of hormonal regulators specified in Fig. 2. The parenthetical number associated with energy flow from available metabolic energy to activity indicates potentially weak or indirect hormonal regulation.