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FOCUS

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### PROJECT

## Life History "Ground Plans" in Social Insect Evo-Devo

Recent work from my group and collaborators suggests that selection on major life history regulators may have been central to evolution of insect social behavior. By defining a "ground plan" of co-regulated traits, these systems can contribute to predictable variation in social phenotypes and serve as substrates for selective breeding.

I would like to mature these hypotheses into a heuristic framework that describes my ideas on the mechanisms of the "ground plan". This framework will allow the focus group to expand its explanatory models to include specific candidate regulators. I believe this extended insight can change our understanding of how social behavior can emerge.

### Recommended Reading

Linksvayer, T. A., O. Rueppell, O. Kaftanoglu, R. E. Page, and G. V. Amdam. 2009. "The genetic basis for transgressive ovary size in honey bee workers." *Genetics*, in press.

Patel, A., K. F. Fondrk, O. Kaftanoglu, C. Emore, G. Hunt, K. Frederick, and G. A. Amdam. 2007. "The making of a queen: TOR pathway is a key player in diphenic caste development." *PLoS ONE* 6: e509. Featured in *Nature*, Research highlights.

Amdam, G. V., A. Csondes, M. K. Fondrk, and R. E. Page. 2006. "Complex social behaviour derived from maternal reproductive traits." *Nature* 439: 76-78.

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PUBLICATIONS FROM THE FELLOW LIBRARY

Amdam, Gro Vang (Cold Spring Habor,2022)

Identifying a developmental transition in honey bees using gene expression data

<https://kxp.k1oplus.de/DB=9.663/PPNSET?PPN=1830551418>

Amdam, Gro Vang (Chicago, Ill.,2013)

Life-history evolution and the polyphenic regulation of somatic maintenance and survival

<https://kxp.k1oplus.de/DB=9.663/PPNSET?PPN=770876013>

Amdam, Gro Vang (London,2012)

Physiological variation as a mechanism for developmental caste-biasing in a facultatively eusocial sweat bee

<https://kxp.k1oplus.de/DB=9.663/PPNSET?PPN=1046039792>

Amdam, Gro Vang (Cambridge,2012)

Regulation of behaviorally associated gene networks in worker honey bee ovaries

<https://kxp.k1oplus.de/DB=9.663/PPNSET?PPN=1017883998>

Amdam, Gro Vang (San Francisco, California, US,2011)

Honey bee PTEN--description, developmental knockdown, and tissue-specific expression of splice-variants correlated with alternative social phenotypes

<https://kxp.k1oplus.de/DB=9.663/PPNSET?PPN=1049263839>

Amdam, Gro Vang (Oxford [u.a.],2011)

Social context, stress, and plasticity of aging

<https://kxp.k1oplus.de/DB=9.663/PPNSET?PPN=1046037765>

Amdam, Gro Vang (Oxford,2011)

Larval and nurse worker control of developmental plasticity and the evolution of honey bee queen-worker dimorphism : corrections

<https://kxp.k1oplus.de/DB=9.663/PPNSET?PPN=1017884749>

Amdam, Gro Vang ([Berlin?],2011)

Genetic architecture of ovary size and asymmetry in European honeybee workers

<https://kxp.k1oplus.de/DB=9.663/PPNSET?PPN=1017880719>

Amdam, Gro Vang (San Francisco, California, US,2011)

Development of an RNA interference tool, characterization of its target, and an ecological test of caste differentiation in the eusocial wasp *Polistes*

<https://kxp.k1oplus.de/DB=9.663/PPNSET?PPN=894986937>

Amdam, Gro Vang (2011)

Honey bee life history plasticity : development, behavior, and aging

<https://kxp.k1oplus.de/DB=9.663/PPNSET?PPN=689233124>