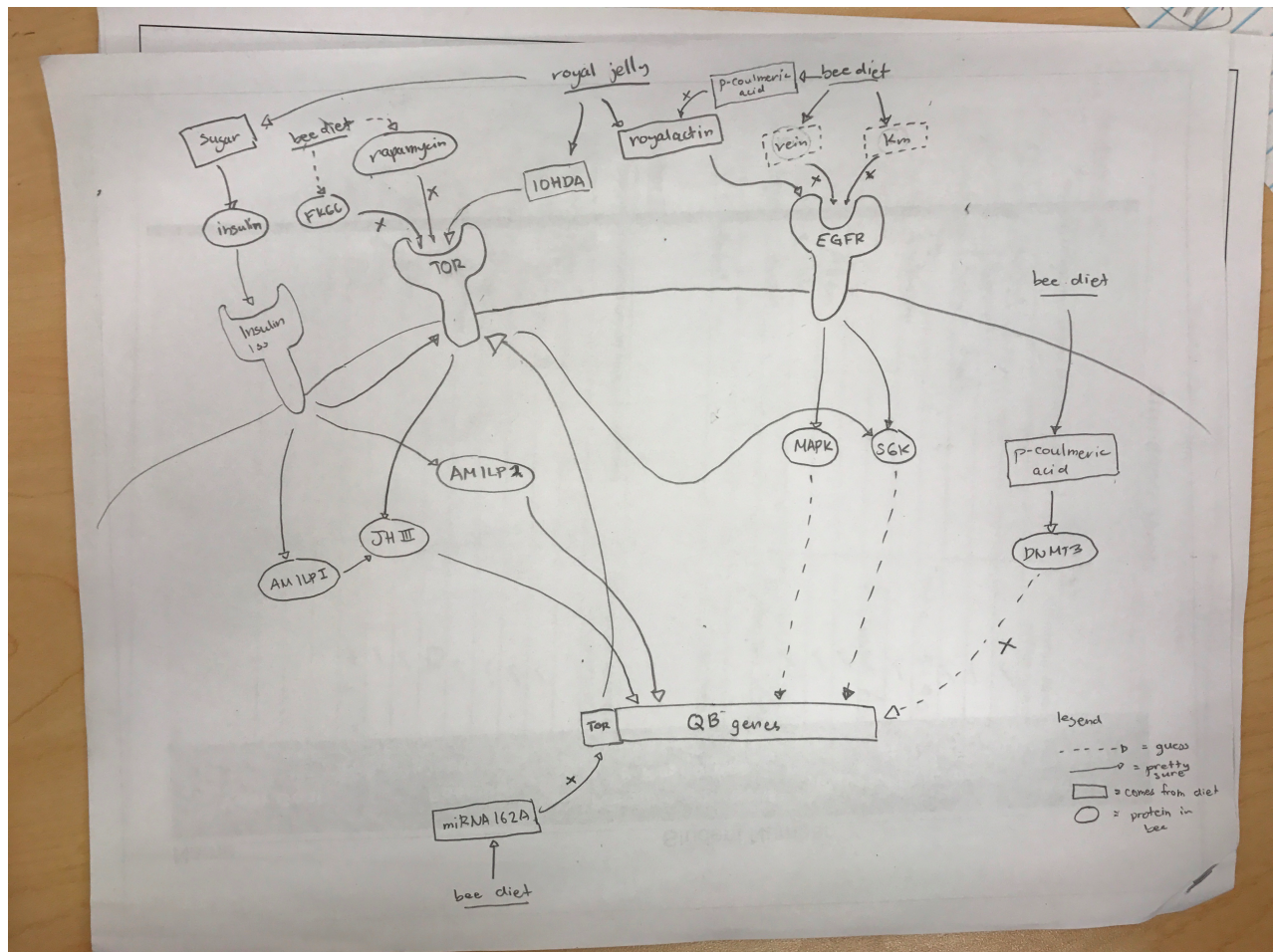


Insert your models/images below!

Group 1:

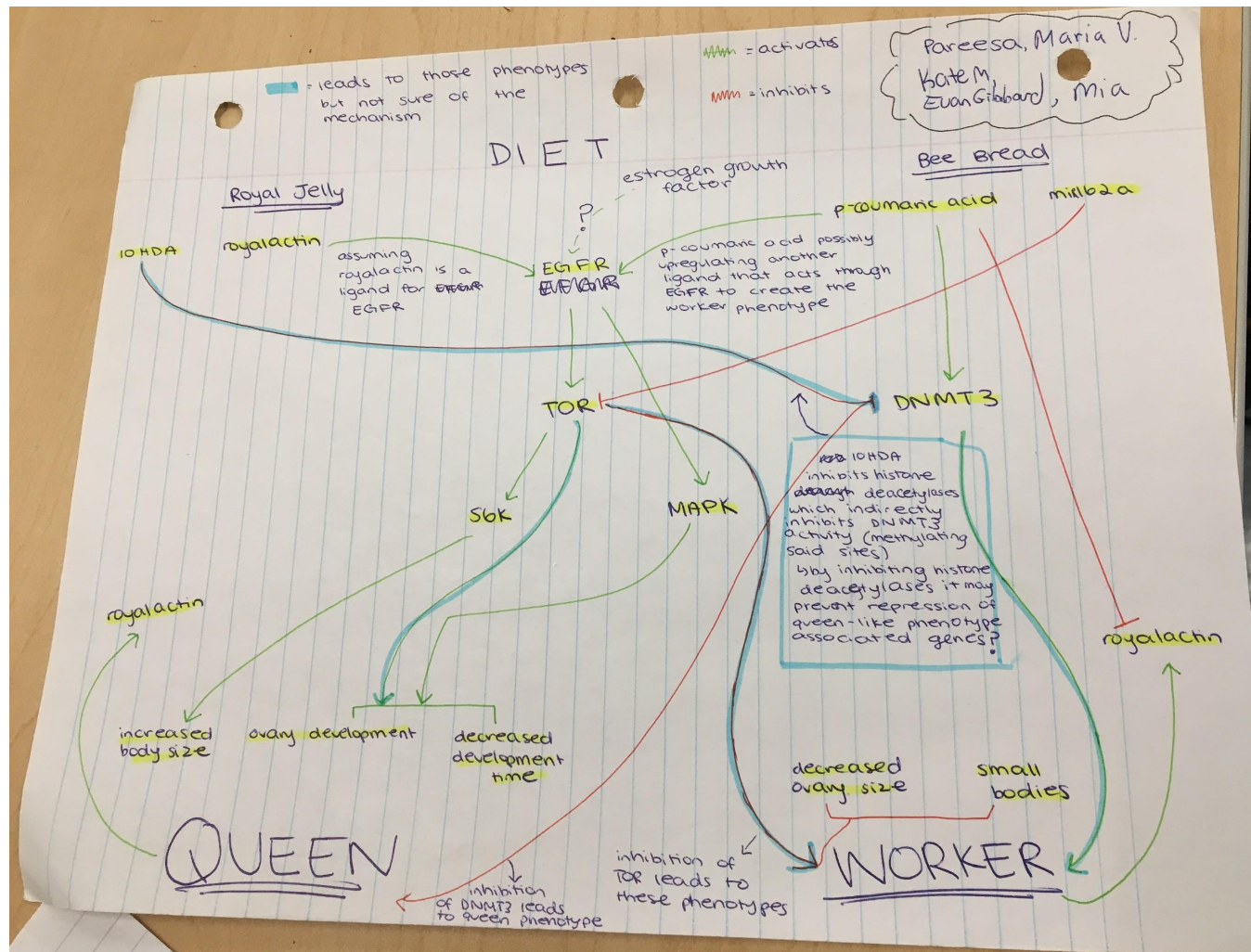


Miguel Oreta, Shannah Fisher, Brett Kiyota, Jacob Fahlman, Beth

Notes:

- Hi friends thank you for reading our proposed model
- We don't know exactly what genes they are that are expressed in the QB phenotype
 - QB phenotype e.g. ovary size, weight, length of the body, fecundity (amount of eggs late), longevity
 - Mao paper has many candidate genes (are differentially expressed in Queen Bees)
 - JH III appears to affect ovary size
- We also found that TOR inhibits 4EBP (a transcription factor), which could be a TF for some worker bee genes. Who knows?
- Further experiments:

Group 2: Pareesa, Maria V., Kate M., Evan Gibbard, Ana-Maria

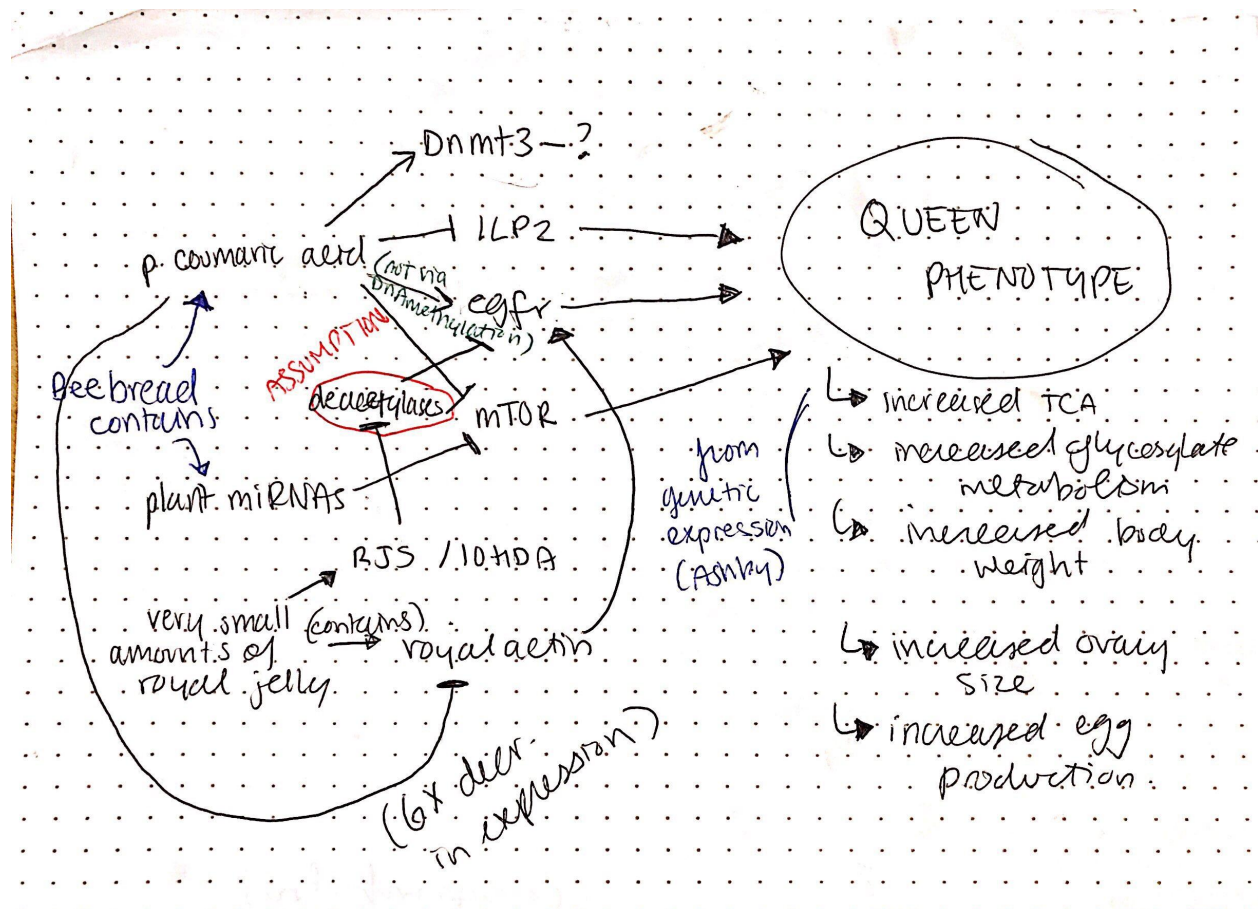


Notes: Please read legend at the top.

- Strong evidence for green/red lines
- Weak evidence for blue highlights (assumptions)

Experiment idea: Examine whether 10HDA is able to inhibit DNMT3 activity in vivo using *Drosophila* as a model.

Group 3: Erin, Jamie, Hayden, Maria, Heather

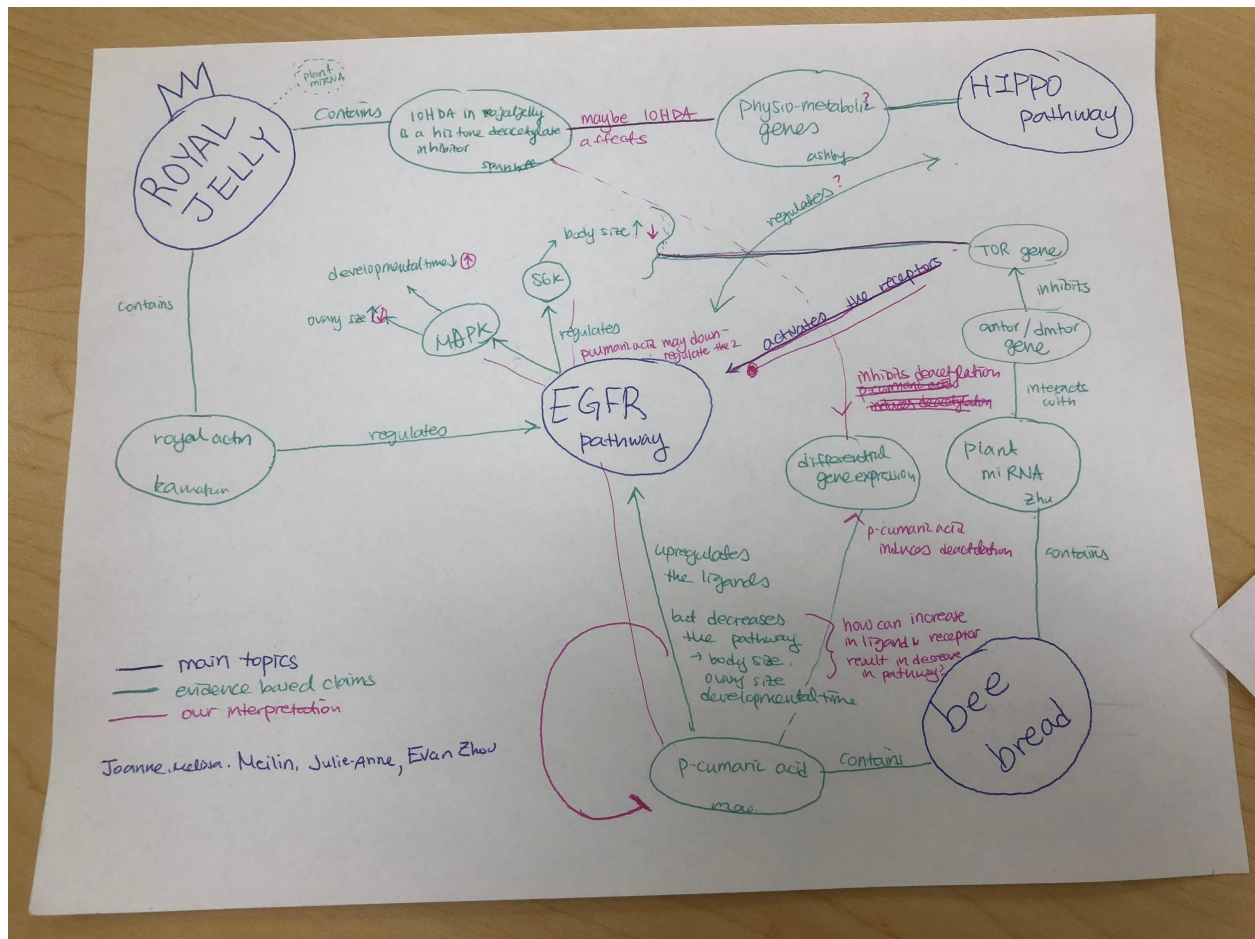


We went with a broader inhibitory and activating effects map, as the biochemical interactions (such as binding and allosteric effects) between receptor proteins is uncertain to us

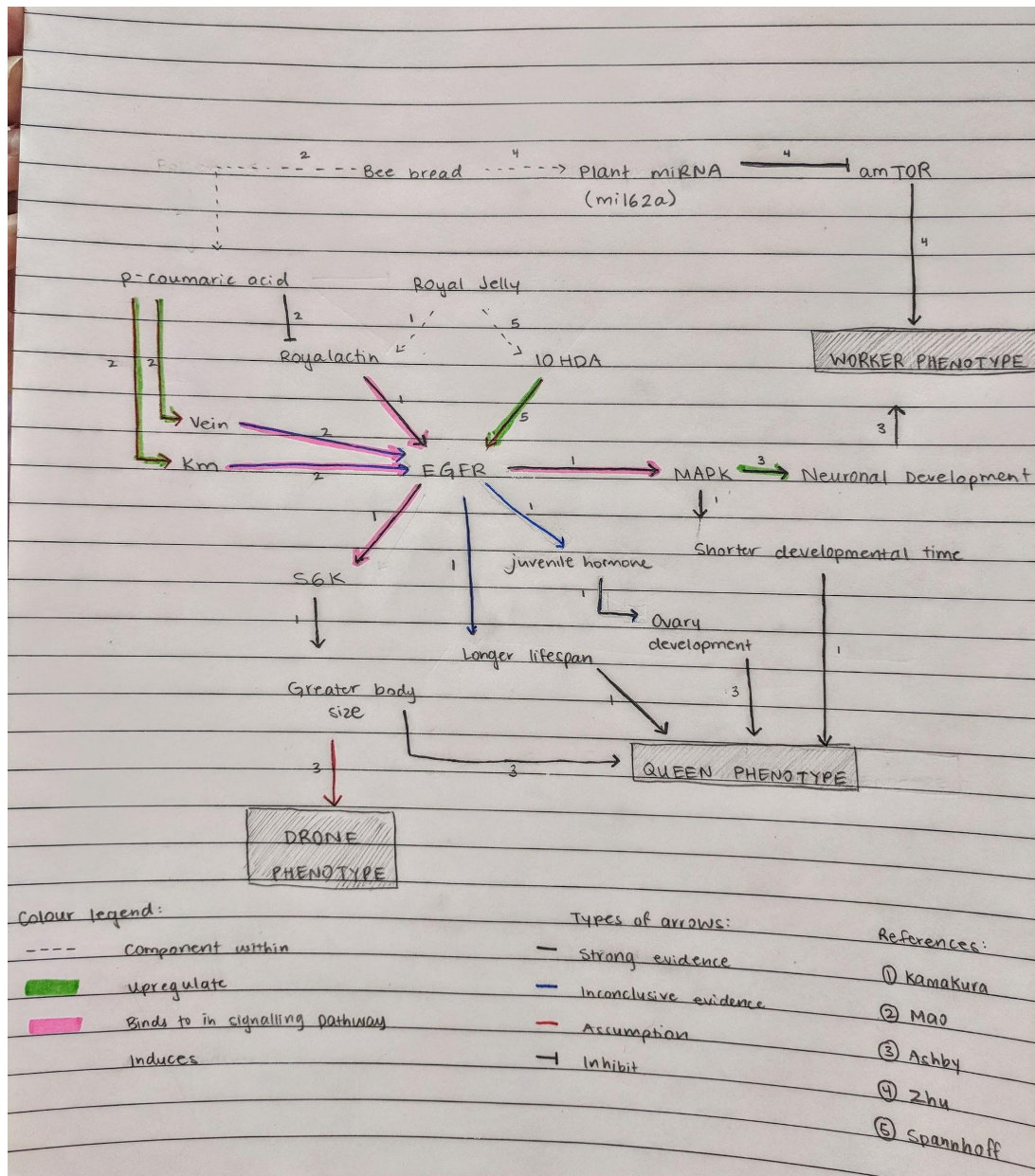
Elements that are strong/weak:

- The arrows in our diagram are all supported by evidence from the articles assigned in class, with a few outside readings as well. These are all strong connections as far as we know.
 - Including that Egfr sequence is found to be never methylated (Kucharski et al., <https://www.nature.com/articles/srep14070>)
- The exception to the above statement in our diagram is the connection of 10HDA to the upregulation of egfr.
 - We do not know that egfr is upregulated by 10HDA.
 - One of 10HDA's primary functions is as a HDACi (histone de-acetylase inhibitor)
 - It could theoretically act on any of the pathways listed in the diagram to carry out its effect on honeybee phenotype, but we hypothesized that it is likely through egfr based on the phenotypic effects and the known properties of 10HDA.
 - This could be tested in future research to provide evidence to support this hypothesis

Group 4: Joanne, Melissa, Meilin, Julie-Anne, Evan Z, Tanis



Group 5: Elizabeth, Jasia, Amanda, Josh, Dee, Oline, Cathy



Notes:

Please read the legends at the bottom

DIETARY DIFFERENCES AND *egfr* REGULATION - SUMMARY

- General 1-2 sentences): What has been shown to affect developmental trajectory in honeybee larvae?
- Known effects of specific dietary components on *egfr* expression (controlled experiments):
- Known associations between specific dietary components and *egfr* expression (correlational studies):
- Inferred/predicted effects of specific dietary components on *egfr* expression:
- **Proposed integrated model (diagram(s) and annotations/figure captions) - if the class can converge on one model:**
- Model weak links: What needs to be tested/demonstrated to validate the model and which of these things is the most crucial:
- Model's interesting speculative parts: What are two assumptions or speculations in the model that would be very interesting to examine next?