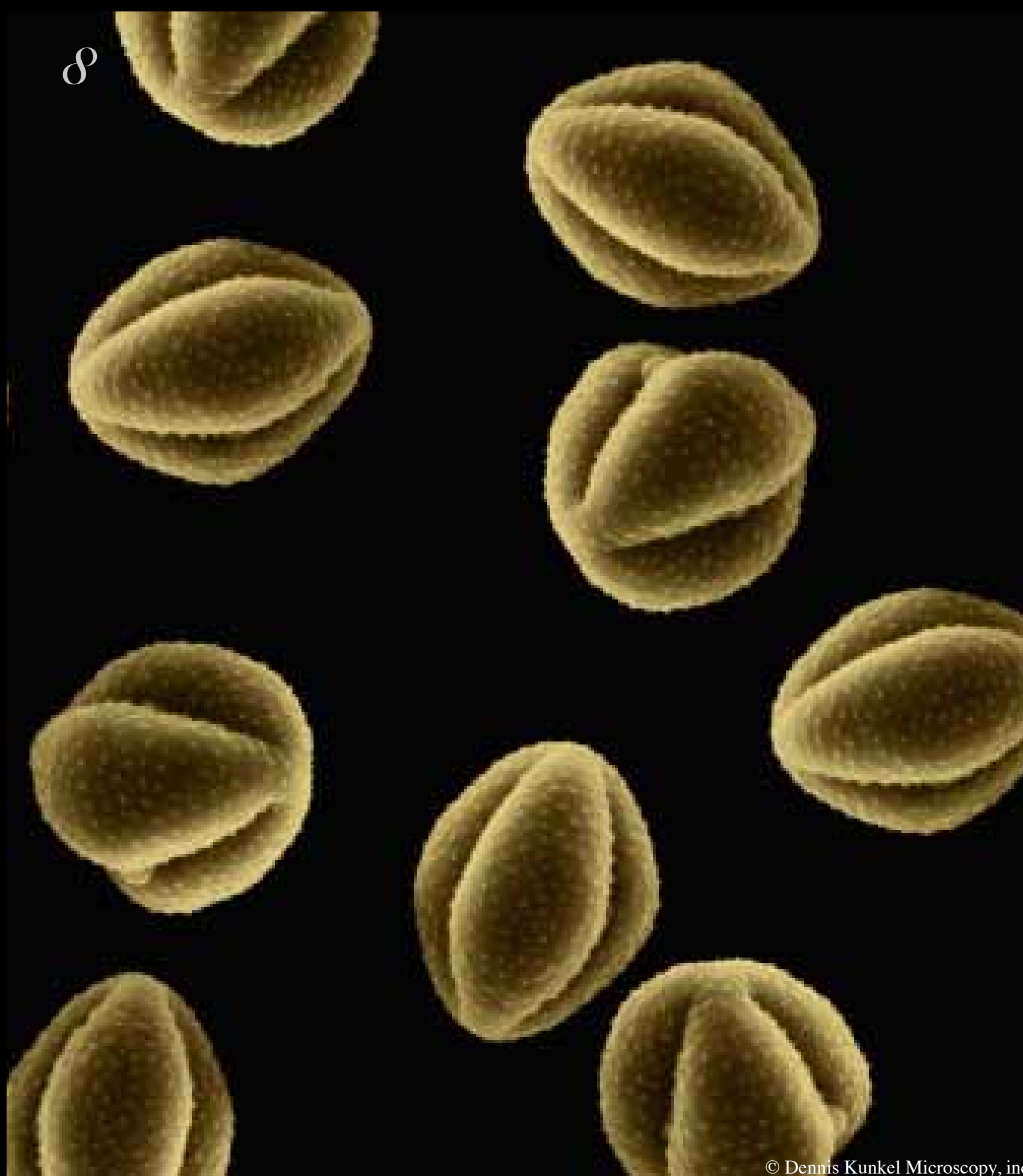
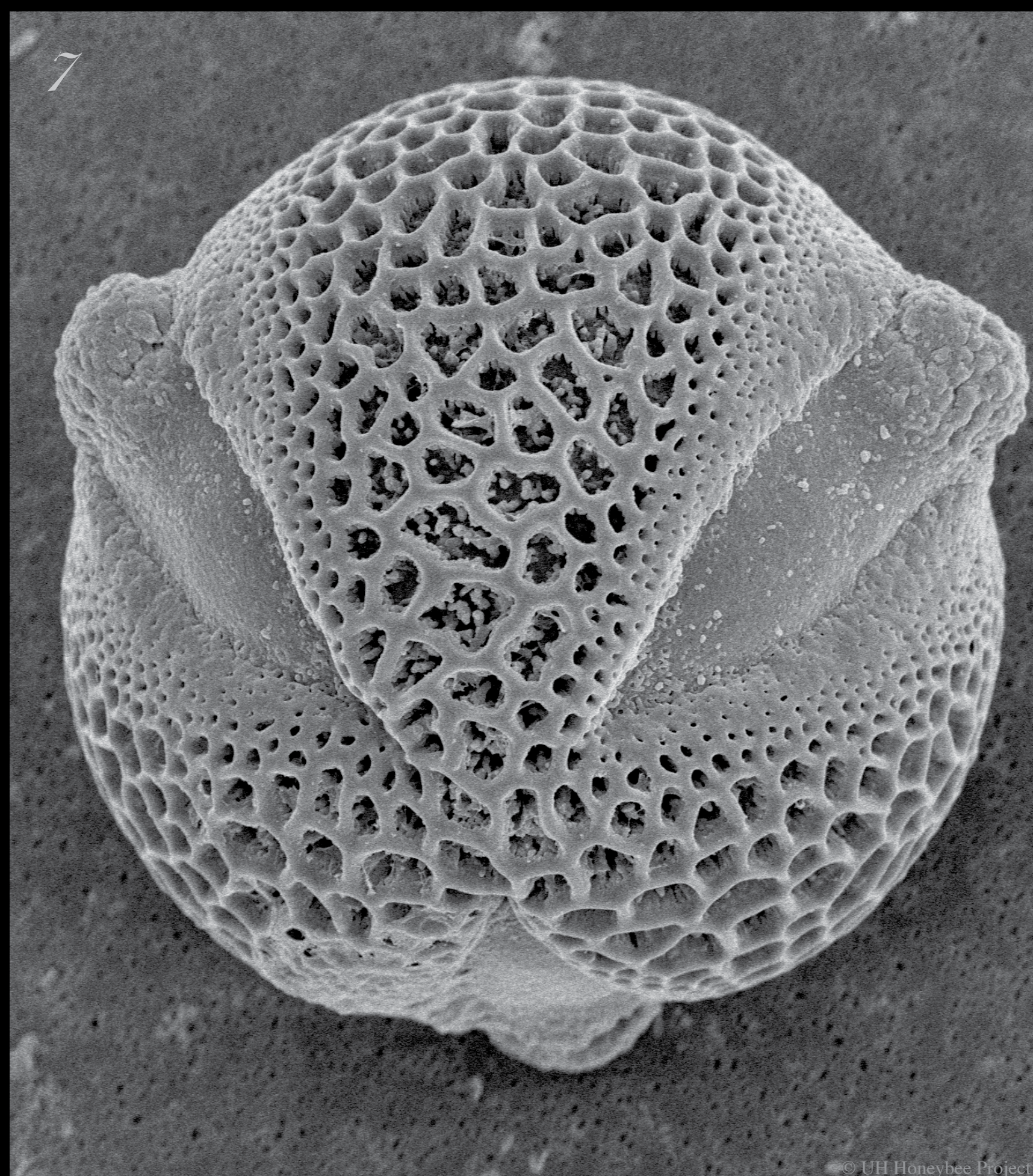
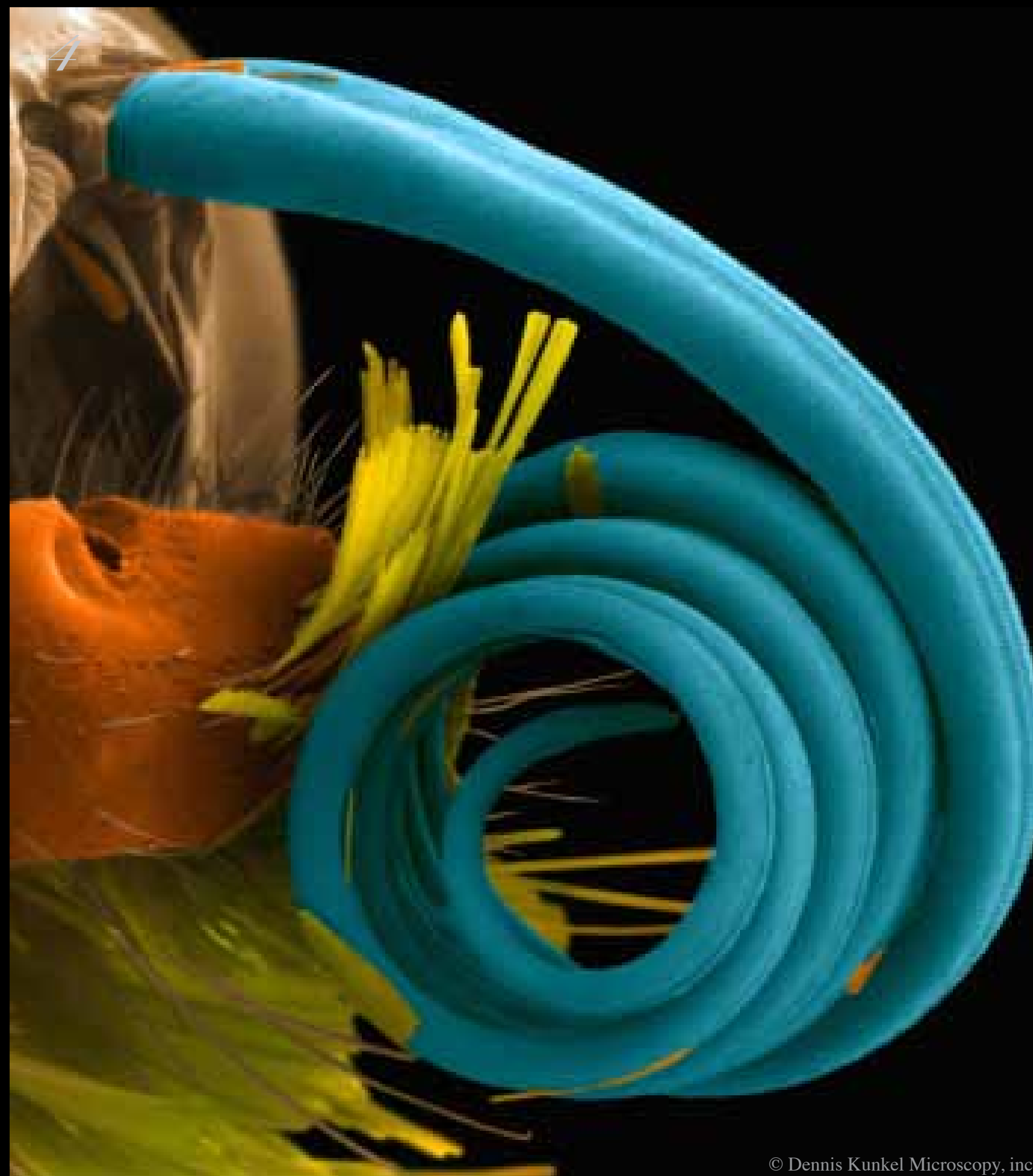
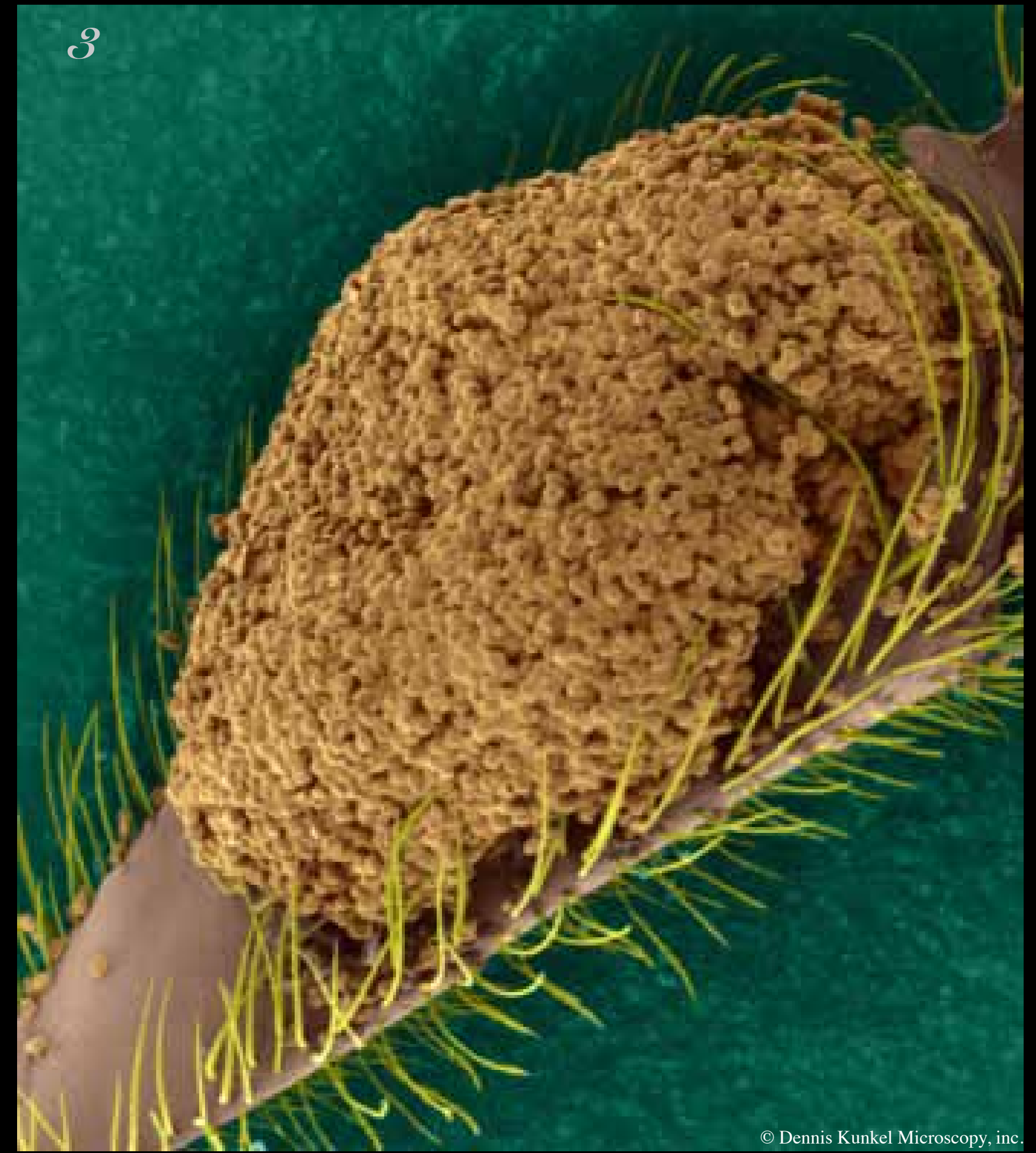


# Pollination Up Close

Pollination is important because it leads to the production of fruits we can eat, and seeds that will create more plants. Pollination begins with flowers. Flowers have male parts that produce very small grains called pollen. Pollination is the transfer of pollen grains from one flower to another. Many insects help move pollen between flowers and act as “pollinators”. Butterflies, moths, bees, and flies are examples of insect pollinators. When a pollinator visits a flower it is looking for food but while feeding these insects accidentally transfer pollen grains between flowers and help the plants produce fruits and seeds. The images below were taken using a scanning electron microscope and show the microstructure details of insect pollinators and of the pollen they help transfer.



- 1- Honeybees are extremely hairy and pollen grains tend to stick to the tiny hairs on their bodies. Honeybees frequently pause to clean themselves and package pollen grains onto pollen baskets on their hind legs.
- 2- Visiting flowers is about getting food, and the tongue (proboscis) of the honeybee is a big mop that helps collect nectar from plants. Honeybees have an internal sac where they carry nectar back to the hive to make honey.
- 3- Honeybees carry pollen grains on special leg “baskets” called “corbicula” that are surrounded by stiff hairs.
- 4- Moths and butterflies use their long mouthparts (the coiled structure) to reach deep into flowers in search of nectar. The image shows a Woodland skipper butterfly compound eye and proboscis (*Ochlodes spp.*)
- 5- The image of a honeybee head shows the area around the base of the antennae. Pollen grains can be seen on the tiny body hairs called “setae”.
- 6- Native Hawaiian yellow –face–bee. These bees are not very hairy and do not have specialized pollen baskets, instead they consume pollen and nectar and carry it to their nests internally. You can see the pollen grains on the mouthparts of this native bee.
- 7- Honeybee workers can travel long distances in search of food. An individual bee usually specializes on a few types of flowers and collect 1000's of pollen grains each foraging trip. Pollen is used to feed the developing bee larvae in the hive.
- 8- Pollen grains have species specific shapes and sizes. The image shows Sagebrush pollen, a plant that is used by honeybees for food.
- 9- When pollen reaches the female part of the flower it begins to grow, when enough pollen is transferred fruits grow large and produce seeds for the next plant generation. The image shows the germination of wild mustard pollen.