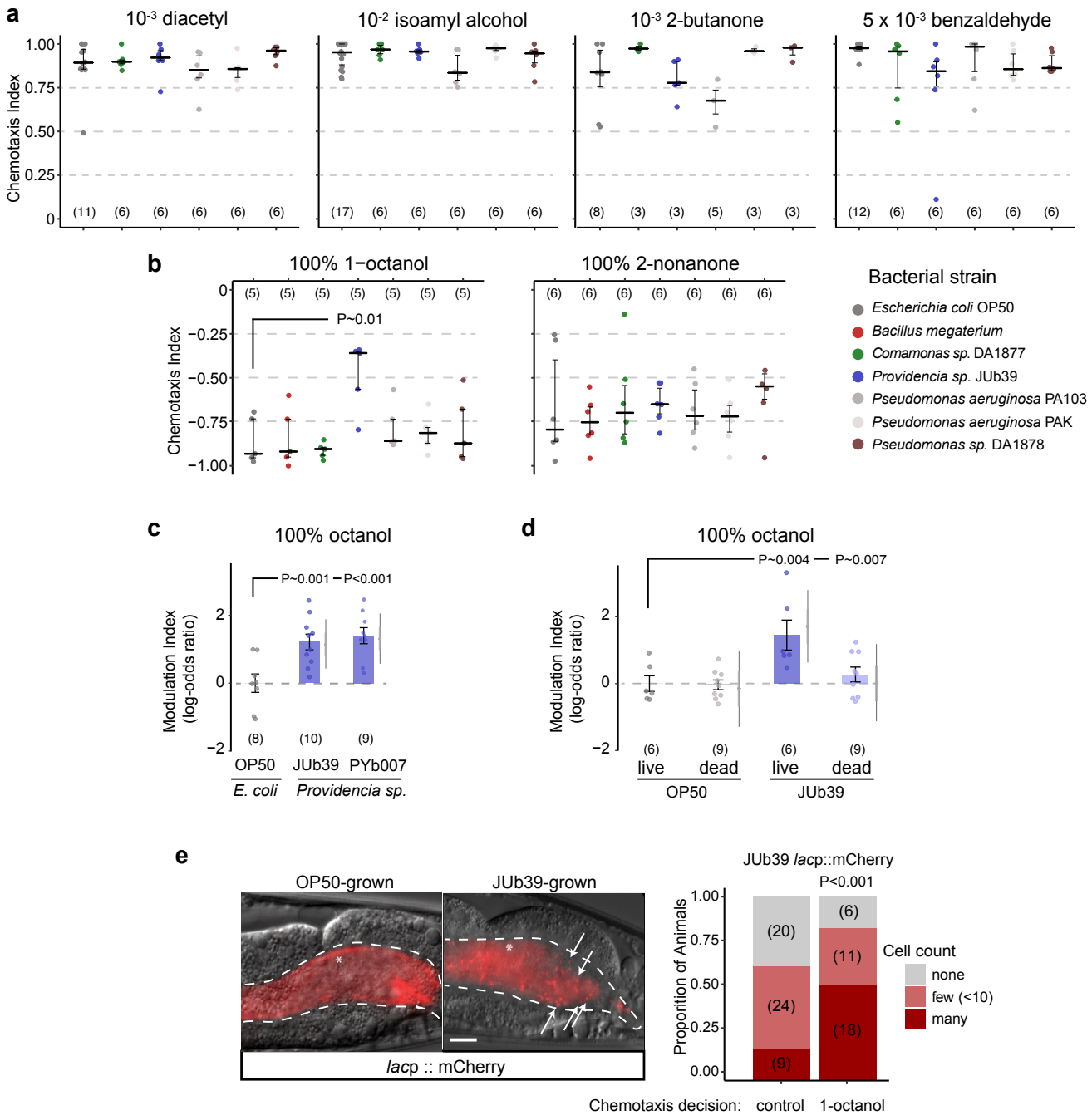

Fig. 1. *Providencia* colonizes the *C. elegans* intestine and modulates octanol avoidance behavior.
a-b) Long-range chemotaxis assays of *C. elegans* grown on the indicated bacterial strains to attractive **(a)** or aversive **(b)** odors. Chemotaxis index (CI) = (animals at the odorant – animals at the control)/total number of animals. Each dot indicates the CI from a single assay of approximately 100 animals. Positive and negative numbers indicate attraction and avoidance, respectively. Horizontal line is median; errors are 1st and 3rd quartiles. *P*-value indicated is from a binomial general linearized mixed-effects model (GLMM) with random intercepts for assay plate and date and with false discovery rate (FDR) for post-hoc comparisons. Numbers in parentheses indicate total number of assays.
c-d) Modulation index of worms grown on the indicated bacterial strains **(c)** or bacterial strains pre-treated with 200 μg/μL gentamicin for 2 hrs prior to plating **(d)** in response to 100% octanol. Modulation index is defined as the log odds-ratio of the proportion of worms at octanol vs control of each condition relative to the OP50-grown condition per independent day. Modulation index values are shown on a log-odds (logit) scale and are normalized to the values of wild-type animals grown on OP50 for each day, indicated with a gray dashed line. Positive numbers indicate reduced octanol avoidance. Errors are SEM. Gray thin and thick vertical bars at right indicate Bayesian 95% and 66% credible intervals, respectively. *P*-values between the indicated conditions are from a GLMM with Dunnett-type multivariate-t adjustment for **c**, and Tukey-type multivariate-t adjustment for **d**.
e) Presence of mCherry-expressing bacteria in the posterior intestines of young adult animals indicated with micrographs (left) or quantified (right). Arrows in micrographs indicate intact rod-shaped cells, asterisk indicates diffuse intestinal fluorescence. Dashed line in micrographs indicate the intestinal boundary. Anterior is at left. Scale bar: 10 μm. Bars at right show proportion of animals with the indicated distribution of JUb39 cells present in animals that migrated to 100% octanol or the control in chemotaxis assays. Numbers in parentheses indicate the number of animals; 3 independent assays. *P*-value is derived from an ordinal regression.