

Stars form out of clouds of molecular gas. The formation and evolution of this star-forming gas represents an important step in building galaxies. We carried out the Heterodyne Receiver Array CO-Line Extragalactic Survey (HERACLES) to constrain how molecular material assembles and forms stars in the nearby universe. Using the powerful Heterodyne Receiver Array (HERA) on the IRAM 30-m telescope (9 beams, 2 polarizations, 13" resolution, Schuster et al. 2004), HERACLES observed molecular gas via the CO J=2-1 transition in a diverse sample of 48 nearby galaxies. By building on previous surveys at other wavelengths - THINGS (Walter et al. 2008), SINGS (Kennicutt et al. 2003), the GALEX NGS (Gil de Paz et al. 2007), and the LVL (Dale et al. 2009) - we are able to observe molecular gas *in context*. This allows one to compare molecular gas with recently formed stars, the atomic gas reservoir, abundances of dust and heavy elements, kinematics, old stars, spiral arms, and other potentially important drivers for the formation of stars and star-forming clouds.

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Each panel shows molecular gas in context for one of our targets, with targets approximately in order of stellar mass from top to bottom. From left to right panels show:

**Molecular Gas**  
Peak CO intensity  
From HERACLES

**Atomic Gas**  
Column from VLA 21 cm data  
THINGS + new & archival

**Kinematics**  
Here from HI line  
Also available from CO

**Old Stars**  
Near infrared intensity  
From SINGS and LVL

**Recent Star Formation**  
Composite of **FUV** (GALEX), **mid-IR** (SINGS/LVL), and **H $\alpha$**  (SINGS/LVL)

