Top Ten Things To Know
Animal Models of HF

1. 5.7 million Americans are living with heart failure – 3.0% of men and 2.0% of women.¹

2. Patients with heart failure in the US received the recommended quality of care only about 63.9% of the time.²

3. The purpose of this document is to define the clinical features that cause or contribute to HF and to recommend distinctive pathological features of human HF that should be included in animal models used in reparative and preventative research studies.

4. The following clinical features were defined to develop in HF: valvular lesions, dilated cardiomyopathies, hypertensive heart disease, and restrictive cardiomyopathies.

5. A prototypical feature in an animal model should include lesions resulting from aortic stenosis where there is myocardial fibrosis with diastolic dysfunction.

6. Prototypical features of mitral regurgitation in an animal model should include volume overload, eccentric hypertrophy and increased myocyte length with no major increase in myocyte width.

7. A clinically relevant animal model with dilated cardiomyopathy should have some of the following reproducible characteristics: spherical left ventricular (LV) dilatation, eccentric hypertrophy with relative wall thinning (reduced mass-to-volume ratio), depressed LV systolic and diastolic performance, and reduced functional reserve with provocation (e.g., exercise or tachycardia).

8. Hypertensive heart disease animal models should mimic that of human heart disease where arterial hypertension, an increase in LV mass, and characteristic changes in LV geometry are present.

9. Animal models representing restrictive cardiomyopathy must have a documented increase in ventricular chamber stiffness as manifested by an exaggerated increase in LV diastolic pressure in response to a volume challenge.

10. Although there have been many advances in the treatment of HF, more novel therapies that can prevent, further slow the progression, and/or reverse the structural and functional defects of the failing heart are needed.

