

TRL Reference Table

TRL	Physical Sciences & Engr	Healthcare (Pharmaceutical)	Healthcare (Medtech)	Healthcare (Diagnostics)	Simplified
1	Basic principles observed	Basic principles observed	Basic principles observed	Basic principles observed	Proof-of-Concept
2	Technology concept formulated	Technology concept formulated	Technology concept formulated	Technology concept formulated	Proof-of-Concept
3	Experimental proof of concept	Experimental proof of concept in vitro and in vivo research models	Experimental proof of concept in vitro and in vivo research models	Experimental proof of concept in vitro	Proof-of-Concept
4	Technology validated in lab	Proof of concept demonstrated in defined laboratory/animal models	Proof of concept demonstrated in defined laboratory/animal models	Analytical validation	Prototype in Lab
5	Technology validated in relevant environment	Non-clinical and pre-clinical research studies, & initial demonstration of feasibility and efficacy	Product Development Plan		
6	Technology demonstrated in relevant environment	Phase I clinical trials	Phase I clinical trials		
7	System prototype demonstration in operational environment	Phase 2 clinical trials	Clinical safety and effectiveness trials in operational environment	Clinical validation in 1 site	Prototype in Live Environment
8	System complete and qualified	Phase 3 clinical trials	Overall risk-benefit Trials		
9	Actual system proven in operational environment	Pharmaceutical can be distributed or marketed	Medical device can be distributed or marketed	Clinical validation in multi-site	Ready-to-Market

Source: IPI Singapore (2021) Available at <https://www.ipi-singapore.org/>