

Use Case 4.1	Create <code>LigandGatedRateConstant</code>
<i>Primary Actor:</i>	End-User
<i>Preconditions:</i>	<ul style="list-style-type: none"> • None
<i>Postconditions:</i>	<ul style="list-style-type: none"> • The <code>LigandGatedRateConstant</code> is initialized and valid
<i>Main Success Scenario:</i> <ol style="list-style-type: none"> 1. The user calls <code>LigandGatedRateConstant</code>'s parameterized constructor with its name, name of the ligand on which it depends, and the ligand power and the three arguments 2. The <code>LigandGatedRateConstant</code> is initialized successfully 	
<i>Extensions:</i> <ol style="list-style-type: none"> 2a. The <code>LigandGatedRateConstant</code>'s name is an empty string <ol style="list-style-type: none"> 1. System throws a runtime exception notifying the user that the <code>LigandGatedRateConstant</code>'s name cannot be empty 2b. The ligand name is an empty string <ol style="list-style-type: none"> 1. System throws a runtime exception notifying the user that the ligand name cannot be empty 	

Use Case 4.2	Get LigandGatedRateConstant Rate
<i>Primary Actor:</i>	End-User
<i>Preconditions:</i>	<ul style="list-style-type: none"> • The LigandGatedRateConstant is initialized and valid
<i>Postconditions:</i>	<ul style="list-style-type: none"> • The rate is returned and the LigandGatedRateConstant is unmodified
<i>Main Success Scenario:</i>	
<ol style="list-style-type: none"> 1. The user calls LigandGatedRateConstant's getRate() function with a smart_ptr to a StateOfTheWorld instance as the only argument 2. The rate calculated as (ligand concentration raised to the ligand power) and is returned to the user 	
<i>Extensions:</i>	
<ol style="list-style-type: none"> 2a. The state_of_the_world pointer is null <ol style="list-style-type: none"> 1. System throws a runtime exception notifying the user that the StateOfTheWorld instance is null 2b. The ligand's concentration value is not found in the StateOfTheWorld instance <ol style="list-style-type: none"> 1. System throws a runtime exception notifying the user that the ligand's concentration does not exist in the StateOfTheWorld instance 	