The System for Population Kinetics A Web Service for Population Kinetic Analysis David Salinger and the Resource Facility for Population Kinetics Department of Bioengineering, University of Washington Seattle, WA 98195-5061, http://www.rfpk.washington.edu

SPK is an open-source software for nonlinear mixed effects models. The Model Design Agent is the interface between users and the SPK.



Each user's models, data and analysis results can be accessed in real time

Job ID *	Submission Time	Status Code	Model Version .	Dataset.Version	- Job Abstract
2206	Thu 2006-08-24 13:22:45	PDT Successful Run	OneComp ODE CL,V.4	Phenobatbital Pop.1	Phenobarbital SLOTWT on CL and V
2205	Thu 2006-08-24 12:46:37	HOT Successful Run	OneCosp ODE CL,V.3	Phenobarbital Pop.1	Phenobarbital SLO*WT on CL -and V
2204-	Thu 2006-08-24 12:29:46	PDT Successful Run	OneCoap ODE CL,V.2	Phenobarbital Pop.1	Phenobarbital INT+SLO*WT on CL as
2203	Thu 2006-08-24 11:57:00	PDT Successful Run	OneComp ODE CL, V.1	Phenobarbital Pop.1	Phenobarbital base model run
2195	Wed 2005-08-23 18:43:01	PDT Successful Fun	OmeComp Algebr CL	Cadralazine Pop.1	MC on Expected Hessian Cadralazia
2193	Wed 2006-08-23 18:31:17	FDT Successful Run	OneComp Algebr CL	Cadralázine Pop.1	MC on First Order Cadralazine da
2192	Wed 2006-08-23 18:19:29	107 Successful Run	OneComp Algebr CL	Cadralazine Pop.1	Expected Messian Analysis Cadral
2191	Wed 2006-08-23 18:14:15	FOT Successful Fun	OneCoap Algebr CL	Cadralazine Pop.1 -	First Order Analysis Cadralazine
2163	Wed 2006-08-23 16:06:21	HOT Successful Run	Two Compartment C	Cpeptide Populati	Cpeptide FO - disgonal OMEGA and
2162	Wed 2006-08-23 15:57:03	FOT Successful Fun	Two Compartment K	Cpeptide Fopulati	Cpeptide FO from STS analysis
2160	Ved 2006-08-23 15734:33	POT Successful Fun	Two Compartment K	Cpeptide Populati	Cpeptide FO from STS - diagonal
2159	Wed-2006-08-23 15:21:15	PDT Successful Pun	Two Compartment K	Cpeptide Fopulati	Cpeptide FO from STS - diagonal

- Continuous enhancements
 - Speed and robustness
 - Bug reporting and tracking
- Potential upcoming features
 - Predefined model library
 - Optimal experimental design
 - Stiff differential equations
 - Algorithmic differentiation
 - · Arbitrarily defined likelihoods
 - Integration between methods
 - Delay differential equations
 - Between-occasion variability
 - Correlated RUV
 - Model identifiability
 - Folder view of past analyses (jobs)

Nonlinear mixed effects models can be defined in SPK using a textual or graphical interface.



Job C	wher workshop	- 22
Share W	th usemame	Share Job
Method	First Order	* Abort Job
	Name	Version
Model ⁻	OneComp ODE CL,V	4 -
Dataset	Phenobarbital Rop	1.1
Abstract	Phenobarbital SLOTWT on CL and	Update
-	Departury . Jour Part et a	Job Hesults
Create N	ew Job:	Job Hesuits
Create N	ew Job: e current job as the parent job of the	new job.
Create N	ew Job: e current job as the parent job of the parameters from current job input	new job.
Create N	ew Job: e current job as the parent job of the parameters from current job input parameters from current job output.	new job. From Input From Output
Create N	ew Job: é current job as the parent job of the parameters from current job input parameters from current job output.	new job. From Input From Output. Warm Start
Create N	ew Job: e current job as the parent job of the barameters from current job input parameters from current job output ispelhood of current job estimation	New job. From Input From Output Warm Start Likelihood
Create N	w Job: e current job as the parent job of the barameters from current job input parameters from current job output. Current job output. Identification current job estimation.	new job From Input From Output Warm Start Likelihood Crisate Job

Job information can be viewed or used to seed new jobs – e.g. population analyses from two-stage results



A contextsensitive JavaHelp content is provided with the Model Design Agent.

SPK is available for all purposes pursuant to its Terms of Use.

Acknowledgment — This work was supported by National Institutes of Health grant P41 EB 001975 (PI: Paolo Vicini).