1 **Supplementary Information**

2 **Wong et al.**

3 The following document contains all of the supplementary information and data for the paper:

4 *Prototype of Running Clinical Trials in an Untrustworthy Environment Using Blockchain*. A

5 brief table of contents is below.

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32 **Supplementary Methods**

33 The blockchain in this simulation exists as multiple copies in one physical location on one

34 machine (see README on GitHub: https://github.com/wongdaniel8/ClinicalTrials/). In reality,

35 the blockchain will be duplicated and stored on multiple different machines, all controlled by the

36 regulator, so that if one machine fails or is corrupted, the network data is not jeopardized. The

37 true data and hash values will be reached by consensus of the different machines, such that each

38 machine will cast a vote on what the hash values of particular articles of data should be. The

39 majority vote consensus hash will be taken as the true value. When new transactions are added

40 on the clinical network, the transactions will be appended to each blockchain on each physically

41 separated machine. This schema will appropriately guard against the compromise or failure of

42 individual machines, given enough machines are used in data storage and no more than half of

43 them are compromised. When validating a blockchain, hash checks are performed

44 chronologically from the genesis block. All elements of the block are hashed using SHA256, and

45 this hash string is compared to the ground truth hash that is reached by consensus.

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63 **Supplementary Discussion**

64 This scheme, if taken from the current proof of concept prototype to a fully functional service,

65 also has the potential to meet scalability needs as more machines and more memory to these

66 machines will be added as needed. With the advent of massive cloud storage, space availability

67 is not an issue, and runtime is still linear in the amount of data on a trial's blockchain. Elements

68 such as timestamp, sender and receiver identities, and hashes, all of which are small string

69 literals, add a negligible fixed-size burden (k bytes) to the memory allocation requirements per

70 entry. More formally, given a memory burden of n bytes for all files stored on the chain with m

71 number of machines, the system requires $n + k$ bytes duplicated across m machines, or $m(n + k)$

72 memory allocation, which is bounded by O(n), and hence linearly scalable. Performance is also

73 linear. Checking for cryptographic hash equivalence is simply a string matching test of fixed

74 length strings returned from SHA256, which is hence bounded by a constant runtime of O(1).

75 When constructing a hash of a file, we must inspect all elements of the data to create the hash

76 string, which is an O(n) operation. Version controlling is fast and scalable, because checking if

77 any two files differ simply requires checking for hash string equivalence, which is an O(1)

78 operation. Since both memory and performance are bounded linearly, we advocate that pushing

79 the proof of concept to full production is feasible and practical, especially given the advances in

80 high performance computing and storage. With favorable linear bounds in place, congestion of

81 the system through increased traffic is not an issue and performance velocity can be maintained.

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83 Instantiating a new blockchain for a new trial is relatively simple and executed by the

84 administrator in charge of the trialchain service. The administrator can instantiate the regulator

85 node and all nodes in the network specified by the regulator, as is the case in private blockchains.

86 The regulator is given full read privileges, and instantiating this super node is the same as

87 instantiating all other nodes, just changing the specific user's privileges. Validating the user

88 privileges and giving more or less access depending on identity is accomplished through logic in

89 the software that is executed automatically. Full implementation of logic can be found in the

90 GitHub repository.

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94   **Supplementary Tables**

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Subject Accession	Arm Accession	Verification Code
SUB73443	ARM2	c6f35fe423
SUB73452	ARM1	ed01da9a83
SUB73491	ARM3	741be0d4c0
SUB73511	ARM4	d3feabcf82

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Supplementary Table 1: Subject Arm and Codes

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Arm Accession	Description	Name
ARM1	Placebo omalizumab pre-treatment, placebo RIT, placebo omalizumab + placebo IT	Placebo Immunotherapy with placebo anti-IgE
ARM2	Placebo omalizumab pre-treatment, ragweed RIT, placebo omalizumab + ragweed IT	Immunotherapy with placebo anti-IgE
ARM3	Omalizumab pre-treatment, placebo RIT, omalizumab + placebo IT	Placebo Immunotherapy with anti-IgE
ARM4	Omalizumab pre-treatment, ragweed RIT, omalizumab + ragweed IT	Immunotherapy with anti-IgE

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Supplementary Table 2: Arm Description

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114 **Supplementary Notes**

115 **Supplementary Note 1**

116 The following section contains example CRF data extracted from ImmPort.

117 Subject: SUB73491
118 verification code: 741be0d4c0
119 Meta Information
120   race: Black or African American
121   gender: Male
122   age_reported: 28
123   arm_accession: ARM3
124 Blood Tests
125   ('study_time_collected: -20 Days', 'name_reported: MCV', 'result_value_reported: 90',
126 'result_unit_reported: um*3')
127   ('study_time_collected: -20 Days', 'name_reported: WBC', 'result_value_reported: 7.2',
128 'result_unit_reported: 10*3 cells/uL')
129   ('study_time_collected: -20 Days', 'name_reported: MONOCYTES',
130 'result_value_reported: 5.4', 'result_unit_reported: %')
131   ('study_time_collected: -20 Days', 'name_reported: MCHC', 'result_value_reported: 34',
132 'result_unit_reported: %')
133   ('study_time_collected: -20 Days', 'name_reported: RBC', 'result_value_reported: 4.71',
134 'result_unit_reported: 10*6 cells/uL')
135   ('study_time_collected: -20 Days', 'name_reported: BASOPHILS', 'result_value_reported:
136 0.2', 'result_unit_reported: %')
137   ('study_time_collected: -20 Days', 'name_reported: MCH', 'result_value_reported: 30',
138 'result_unit_reported: %')
139   ('study_time_collected: -20 Days', 'name_reported: Total IgE', 'result_value_reported: 34',
140 'result_unit_reported: unknown')
141   ('study_time_collected: -20 Days', 'name_reported: HEMOGLOBIN',
142 'result_value_reported: 14.1', 'result_unit_reported: g/dL')
143   ('study_time_collected: -20 Days', 'name_reported: SEGMENTED NEUTROPHILS',
144 'result_value_reported: 52.7', 'result_unit_reported: %')
145   ('study_time_collected: -20 Days', 'name_reported: LYMPHOCYTES',
146 'result_value_reported: 37.1', 'result_unit_reported: %')
147   ('study_time_collected: -20 Days', 'name_reported: HEMATOCRIT',
148 'result_value_reported: 42', 'result_unit_reported: %')
149   ('study_time_collected: -20 Days', 'name_reported: LARGE UNCLASSIFIED CELLS',
150 'result_value_reported: 3.4', 'result_unit_reported: NULL')
151   ('study_time_collected: -20 Days', 'name_reported: EOSINOPHILS',
152 'result_value_reported: 1.7', 'result_unit_reported: %')
153   ('study_time_collected: -20 Days', 'name_reported: PLATELET COUNT',
154 'result_value_reported: 194', 'result_unit_reported: 10*3 cells/uL')
155   ('study_time_collected: 0 Days', 'name_reported: EOSINOPHILS',
156 'result_value_reported: 4.6', 'result_unit_reported: %')
157   ('study_time_collected: 0 Days', 'name_reported: RBC', 'result_value_reported: 4.45',
158 'result_unit_reported: 10*6 cells/uL')

159   ('study_time_collected: 0 Days', 'name_reported: PLATELET COUNT',
160 'result_value_reported: 223', 'result_unit_reported: 10*3 cells/uL')
161   ('study_time_collected: 0 Days', 'name_reported: HEMATOCRIT',
162 'result_value_reported: 41', 'result_unit_reported: %')
163   ('study_time_collected: 0 Days', 'name_reported: MCV', 'result_value_reported: 92',
164 'result_unit_reported: um*3')
165   ('study_time_collected: 0 Days', 'name_reported: MCHC', 'result_value_reported: 33',
166 'result_unit_reported: %')
167   ('study_time_collected: 0 Days', 'name_reported: BASOPHILS', 'result_value_reported:
168 0.4', 'result_unit_reported: %')
169   ('study_time_collected: 0 Days', 'name_reported: HEMOGLOBIN',
170 'result_value_reported: 13.5', 'result_unit_reported: g/dL')
171   ('study_time_collected: 0 Days', 'name_reported: MCH', 'result_value_reported: 30',
172 'result_unit_reported: %')
173   ('study_time_collected: 0 Days', 'name_reported: MONOCYTES', 'result_value_reported:
174 6.6', 'result_unit_reported: %')
175   ('study_time_collected: 0 Days', 'name_reported: LYMPHOCYTES',
176 'result_value_reported: 41.2', 'result_unit_reported: %')
177   ('study_time_collected: 0 Days', 'name_reported: WBC', 'result_value_reported: 5.9',
178 'result_unit_reported: 10*3 cells/uL')
179   ('study_time_collected: 0 Days', 'name_reported: BANDS', 'result_value_reported: 0',
180 'result_unit_reported: %')
181   ('study_time_collected: 0 Days', 'name_reported: SEGMENTED NEUTROPHILS',
182 'result_value_reported: 44.4', 'result_unit_reported: %')
183   ('study_time_collected: 0 Days', 'name_reported: LARGE UNCLASSIFIED CELLS',
184 'result_value_reported: 2.8', 'result_unit_reported: NULL')
185   ('study_time_collected: 119 Days', 'name_reported: LYMPHOCYTES',
186 'result_value_reported: 38.1', 'result_unit_reported: %')
187   ('study_time_collected: 119 Days', 'name_reported: WBC', 'result_value_reported: 5.4',
188 'result_unit_reported: 10*3 cells/uL')
189   ('study_time_collected: 119 Days', 'name_reported: RBC', 'result_value_reported: 4.55',
190 'result_unit_reported: 10*6 cells/uL')
191   ('study_time_collected: 119 Days', 'name_reported: MCHC', 'result_value_reported: 34',
192 'result_unit_reported: %')
193   ('study_time_collected: 119 Days', 'name_reported: MCV', 'result_value_reported: 88',
194 'result_unit_reported: um*3')
195   ('study_time_collected: 119 Days', 'name_reported: PLATELET COUNT',
196 'result_value_reported: 189', 'result_unit_reported: 10*3 cells/uL')
197   ('study_time_collected: 119 Days', 'name_reported: SEGMENTED NEUTROPHILS',
198 'result_value_reported: 50.2', 'result_unit_reported: %')
199   ('study_time_collected: 119 Days', 'name_reported: MONOCYTES',
200 'result_value_reported: 6.2', 'result_unit_reported: %')
201   ('study_time_collected: 119 Days', 'name_reported: HEMOGLOBIN',
202 'result_value_reported: 13.7', 'result_unit_reported: g/dL')
203   ('study_time_collected: 119 Days', 'name_reported: EOSINOPHILS',
204 'result_value_reported: 2.4', 'result_unit_reported: %')

205   ('study_time_collected: 119 Days', 'name_reported: LARGE UNCLASSIFIED CELLS',
206   'result_value_reported: 2.6', 'result_unit_reported: NULL')
207   ('study_time_collected: 119 Days', 'name_reported: MCH', 'result_value_reported: 30',
208   'result_unit_reported: %')
209   ('study_time_collected: 119 Days', 'name_reported: BASOPHILS',
210   'result_value_reported: 0.5', 'result_unit_reported: %')
211   ('study_time_collected: 119 Days', 'name_reported: HEMATOCRIT',
212   'result_value_reported: 40', 'result_unit_reported: %')
213   ('study_time_collected: 147 Days', 'name_reported: MCH', 'result_value_reported: 30',
214   'result_unit_reported: %')
215   ('study_time_collected: 147 Days', 'name_reported: HEMOGLOBIN',
216   'result_value_reported: 13.7', 'result_unit_reported: g/dL')
217   ('study_time_collected: 147 Days', 'name_reported: HEMATOCRIT',
218   'result_value_reported: 41', 'result_unit_reported: %')
219   ('study_time_collected: 147 Days', 'name_reported: MCV', 'result_value_reported: 90',
220   'result_unit_reported: um*3')
221   ('study_time_collected: 147 Days', 'name_reported: EOSINOPHILS',
222   'result_value_reported: 2.6', 'result_unit_reported: %')
223   ('study_time_collected: 147 Days', 'name_reported: LARGE UNCLASSIFIED CELLS',
224   'result_value_reported: 2.4', 'result_unit_reported: NULL')
225   ('study_time_collected: 147 Days', 'name_reported: SEGMENTED NEUTROPHILS',
226   'result_value_reported: 54.2', 'result_unit_reported: %')
227   ('study_time_collected: 147 Days', 'name_reported: MONOCYTES',
228   'result_value_reported: 6.5', 'result_unit_reported: %')
229   ('study_time_collected: 147 Days', 'name_reported: RBC', 'result_value_reported: 4.51',
230   'result_unit_reported: 10*6 cells/uL')
231   ('study_time_collected: 147 Days', 'name_reported: PLATELET COUNT',
232   'result_value_reported: 203', 'result_unit_reported: 10*3 cells/uL')
233   ('study_time_collected: 147 Days', 'name_reported: WBC', 'result_value_reported: 6.9',
234   'result_unit_reported: 10*3 cells/uL')
235   ('study_time_collected: 147 Days', 'name_reported: LYMPHOCYTES',
236   'result_value_reported: 34', 'result_unit_reported: %')
237   ('study_time_collected: 147 Days', 'name_reported: MCHC', 'result_value_reported: 34',
238   'result_unit_reported: %')
239   ('study_time_collected: 147 Days', 'name_reported: BASOPHILS',
240   'result_value_reported: 0.3', 'result_unit_reported: %')
241   ('study_time_collected: 160 Days', 'name_reported: RBC', 'result_value_reported: 4.29',
242   'result_unit_reported: 10*6 cells/uL')
243   ('study_time_collected: 160 Days', 'name_reported: MONOCYTES',
244   'result_value_reported: 7.3', 'result_unit_reported: %')
245   ('study_time_collected: 160 Days', 'name_reported: HEMATOCRIT',
246   'result_value_reported: 39', 'result_unit_reported: %')
247   ('study_time_collected: 160 Days', 'name_reported: MCHC', 'result_value_reported: 34',
248   'result_unit_reported: %')
249   ('study_time_collected: 160 Days', 'name_reported: LYMPHOCYTES',
250   'result_value_reported: 37', 'result_unit_reported: %')

251   ('study_time_collected: 160 Days', 'name_reported: MCH', 'result_value_reported: 31',
252 'result_unit_reported: %')
253   ('study_time_collected: 160 Days', 'name_reported: HEMOGLOBIN',
254 'result_value_reported: 13.3', 'result_unit_reported: g/dL')
255   ('study_time_collected: 160 Days', 'name_reported: BASOPHILS',
256 'result_value_reported: 0.3', 'result_unit_reported: %')
257   ('study_time_collected: 160 Days', 'name_reported: EOSINOPHILS',
258 'result_value_reported: 2.8', 'result_unit_reported: %')
259   ('study_time_collected: 160 Days', 'name_reported: LARGE UNCLASSIFIED CELLS',
260 'result_value_reported: 2.9', 'result_unit_reported: NULL')
261   ('study_time_collected: 160 Days', 'name_reported: WBC', 'result_value_reported: 4.7',
262 'result_unit_reported: 10*3 cells/uL')
263   ('study_time_collected: 160 Days', 'name_reported: PLATELET COUNT',
264 'result_value_reported: 198', 'result_unit_reported: 10*3 cells/uL')
265   ('study_time_collected: 160 Days', 'name_reported: MCV', 'result_value_reported: 90',
266 'result_unit_reported: um*3')
267   ('study_time_collected: 160 Days', 'name_reported: SEGMENTED NEUTROPHILS',
268 'result_value_reported: 49.7', 'result_unit_reported: %')
269   ('study_time_collected: 28 Days', 'name_reported: WBC', 'result_value_reported: 6.2',
270 'result_unit_reported: 10*3 cells/uL')
271   ('study_time_collected: 28 Days', 'name_reported: BASOPHILS', 'result_value_reported:
272 0', 'result_unit_reported: %')
273   ('study_time_collected: 28 Days', 'name_reported: BANDS', 'result_value_reported: 4',
274 'result_unit_reported: %')
275   ('study_time_collected: 28 Days', 'name_reported: PLATELET COUNT',
276 'result_value_reported: 235', 'result_unit_reported: 10*3 cells/uL')
277   ('study_time_collected: 28 Days', 'name_reported: LYMPHOCYTES',
278 'result_value_reported: 49', 'result_unit_reported: %')
279   ('study_time_collected: 28 Days', 'name_reported: MCHC', 'result_value_reported: 33',
280 'result_unit_reported: %')
281   ('study_time_collected: 28 Days', 'name_reported: EOSINOPHILS',
282 'result_value_reported: 0', 'result_unit_reported: %')
283   ('study_time_collected: 28 Days', 'name_reported: SEGMENTED NEUTROPHILS',
284 'result_value_reported: 43', 'result_unit_reported: %')
285   ('study_time_collected: 28 Days', 'name_reported: HEMATOCRIT',
286 'result_value_reported: 43', 'result_unit_reported: %')
287   ('study_time_collected: 28 Days', 'name_reported: MCV', 'result_value_reported: 91',
288 'result_unit_reported: um*3')
289   ('study_time_collected: 28 Days', 'name_reported: RBC', 'result_value_reported: 4.68',
290 'result_unit_reported: 10*6 cells/uL')
291   ('study_time_collected: 28 Days', 'name_reported: MCH', 'result_value_reported: 30',
292 'result_unit_reported: %')
293   ('study_time_collected: 28 Days', 'name_reported: HEMOGLOBIN',
294 'result_value_reported: 14.2', 'result_unit_reported: g/dL')
295   ('study_time_collected: 28 Days', 'name_reported: MONOCYTES',
296 'result_value_reported: 4', 'result_unit_reported: %')

297   ('study_time_collected: 369 Days', 'name_reported: BASOPHILS',
298 'result_value_reported: 0.3', 'result_unit_reported: %')
299   ('study_time_collected: 369 Days', 'name_reported: SEGMENTED NEUTROPHILS',
300 'result_value_reported: 47.7', 'result_unit_reported: %')
301   ('study_time_collected: 369 Days', 'name_reported: LYMPHOCYTES',
302 'result_value_reported: 39.5', 'result_unit_reported: %')
303   ('study_time_collected: 369 Days', 'name_reported: EOSINOPHILS',
304 'result_value_reported: 2.3', 'result_unit_reported: %')
305   ('study_time_collected: 369 Days', 'name_reported: HEMOGLOBIN',
306 'result_value_reported: 14.4', 'result_unit_reported: g/dL')
307   ('study_time_collected: 369 Days', 'name_reported: LARGE UNCLASSIFIED CELLS',
308 'result_value_reported: 2.8', 'result_unit_reported: NULL')
309   ('study_time_collected: 369 Days', 'name_reported: HEMATOCRIT',
310 'result_value_reported: 42', 'result_unit_reported: %')
311   ('study_time_collected: 369 Days', 'name_reported: MCH', 'result_value_reported: 31',
312 'result_unit_reported: %')
313   ('study_time_collected: 369 Days', 'name_reported: MONOCYTES',
314 'result_value_reported: 7.4', 'result_unit_reported: %')
315   ('study_time_collected: 369 Days', 'name_reported: MCV', 'result_value_reported: 91',
316 'result_unit_reported: um*3')
317   ('study_time_collected: 369 Days', 'name_reported: MCHC', 'result_value_reported: 34',
318 'result_unit_reported: %')
319   ('study_time_collected: 369 Days', 'name_reported: RBC', 'result_value_reported: 4.62',
320 'result_unit_reported: 10*6 cells/uL')
321   ('study_time_collected: 369 Days', 'name_reported: WBC', 'result_value_reported: 5.2',
322 'result_unit_reported: 10*3 cells/uL')
323   ('study_time_collected: 369 Days', 'name_reported: PLATELET COUNT',
324 'result_value_reported: 179', 'result_unit_reported: 10*3 cells/uL')
325   ('study_time_collected: 56 Days', 'name_reported: BANDS', 'result_value_reported: 1',
326 'result_unit_reported: %')
327   ('study_time_collected: 56 Days', 'name_reported: MCV', 'result_value_reported: 90',
328 'result_unit_reported: um*3')
329   ('study_time_collected: 56 Days', 'name_reported: HEMATOCRIT',
330 'result_value_reported: 43', 'result_unit_reported: %')
331   ('study_time_collected: 56 Days', 'name_reported: MONOCYTES',
332 'result_value_reported: 9', 'result_unit_reported: %')
333   ('study_time_collected: 56 Days', 'name_reported: HEMOGLOBIN',
334 'result_value_reported: 14.5', 'result_unit_reported: g/dL')
335   ('study_time_collected: 56 Days', 'name_reported: BASOPHILS', 'result_value_reported:
336 0', 'result_unit_reported: %')
337   ('study_time_collected: 56 Days', 'name_reported: MCHC', 'result_value_reported: 34',
338 'result_unit_reported: %')
339   ('study_time_collected: 56 Days', 'name_reported: RBC', 'result_value_reported: 4.74',
340 'result_unit_reported: 10*6 cells/uL')
341   ('study_time_collected: 56 Days', 'name_reported: MCH', 'result_value_reported: 31',
342 'result_unit_reported: %')

343 ('study_time_collected: 56 Days', 'name_reported: LYMPHOCYTES',
344 'result_value_reported: 51', 'result_unit_reported: %')
345 ('study_time_collected: 56 Days', 'name_reported: PLATELET COUNT',
346 'result_value_reported: 221', 'result_unit_reported: 10*3 cells/uL')
347 ('study_time_collected: 56 Days', 'name_reported: WBC', 'result_value_reported: 6.7',
348 'result_unit_reported: 10*3 cells/uL')
349 ('study_time_collected: 56 Days', 'name_reported: SEGMENTED NEUTROPHILS',
350 'result_value_reported: 39', 'result_unit_reported: %')
351 ('study_time_collected: 56 Days', 'name_reported: EOSINOPHILS',
352 'result_value_reported: 0', 'result_unit_reported: %')
353 ('study_time_collected: 91 Days', 'name_reported: BASOPHILS', 'result_value_reported:
354 0.3', 'result_unit_reported: %')
355 ('study_time_collected: 91 Days', 'name_reported: LYMPHOCYTES',
356 'result_value_reported: 30.3', 'result_unit_reported: %')
357 ('study_time_collected: 91 Days', 'name_reported: PLATELET COUNT',
358 'result_value_reported: 199', 'result_unit_reported: 10*3 cells/uL')
359 ('study_time_collected: 91 Days', 'name_reported: MONOCYTES',
360 'result_value_reported: 5.5', 'result_unit_reported: %')
361 ('study_time_collected: 91 Days', 'name_reported: EOSINOPHILS',
362 'result_value_reported: 1.9', 'result_unit_reported: %')
363 ('study_time_collected: 91 Days', 'name_reported: SEGMENTED NEUTROPHILS',
364 'result_value_reported: 59.6', 'result_unit_reported: %')
365 ('study_time_collected: 91 Days', 'name_reported: MCHC', 'result_value_reported: 35',
366 'result_unit_reported: %')
367 ('study_time_collected: 91 Days', 'name_reported: HEMOGLOBIN',
368 'result_value_reported: 13.8', 'result_unit_reported: g/dL')
369 ('study_time_collected: 91 Days', 'name_reported: LARGE UNCLASSIFIED CELLS',
370 'result_value_reported: 2.4', 'result_unit_reported: NULL')
371 ('study_time_collected: 91 Days', 'name_reported: RBC', 'result_value_reported: 4.53',
372 'result_unit_reported: 10*6 cells/uL')
373 ('study_time_collected: 91 Days', 'name_reported: MCH', 'result_value_reported: 30',
374 'result_unit_reported: %')
375 ('study_time_collected: 91 Days', 'name_reported: MCV', 'result_value_reported: 88',
376 'result_unit_reported: um*3')
377 ('study_time_collected: 91 Days', 'name_reported: HEMATOCRIT',
378 'result_value_reported: 40', 'result_unit_reported: %')
379 ('study_time_collected: 91 Days', 'name_reported: WBC', 'result_value_reported: 6.8',
380 'result_unit_reported: 10*3 cells/uL')
381
382 Assay Measurements
383 ('study_time_collected: -8', 'analyte: IgE-a Amb a', 'value_reported: 28.3', 'unit_reported:
384 U/ml')
385 ('study_time_collected: -8', 'analyte: IgG-a Amb a', 'value_reported: 43', 'unit_reported:
386 U/ml')
387 ('study_time_collected: -8', 'analyte: IgE-a Ragweed', 'value_reported: 1.71',
388 'unit_reported: kIUa/ml')

389   ('study_time_collected: -8', 'analyte: Free IgE Concentration', 'value_reported: 89.92',
390 'unit_reported: ng/ml')
391   ('study_time_collected: -8', 'analyte: IgG-a Ragweed', 'value_reported: 100',
392 'unit_reported: ng/ml')
393   ('study_time_collected: 105', 'analyte: IgG-a Amb a', 'value_reported: 511.5',
394 'unit_reported: U/ml')
395   ('study_time_collected: 105', 'analyte: IgE-a Amb a', 'value_reported: 3340',
396 'unit_reported: U/ml')
397   ('study_time_collected: 105', 'analyte: IgE-a Ragweed', 'value_reported: 71.1',
398 'unit_reported: kIUa/ml')
399   ('study_time_collected: 105', 'analyte: Free IgE Concentration', 'value_reported: 17.376',
400 'unit_reported: ng/ml')
401   ('study_time_collected: 105', 'analyte: IgG-a Ragweed', 'value_reported: 385',
402 'unit_reported: ng/ml')
403   ('study_time_collected: 202', 'analyte: Free IgE Concentration', 'value_reported: 34.303',
404 'unit_reported: ng/ml')
405   ('study_time_collected: 202', 'analyte: IgE-a Ragweed', 'value_reported: 45.6',
406 'unit_reported: kIUa/ml')
407   ('study_time_collected: 202', 'analyte: IgG-a Ragweed', 'value_reported: 377',
408 'unit_reported: ng/ml')
409   ('study_time_collected: 202', 'analyte: IgG-a Amb a', 'value_reported: 398',
410 'unit_reported: U/ml')
411   ('study_time_collected: 202', 'analyte: IgE-a Amb a', 'value_reported: 2195',
412 'unit_reported: U/ml')
413
414 Adverse Reactions
415   Muscle strain
416   Injection site swelling
417   Sinus headache
418   Insomnia
419   Nasal congestion
420   Sinus pain
421   Sneezing
422   Throat irritation
423   Dyspnoea exertional
424   Blood pressure decreased
425   Sinus congestion
426   Myalgia
427   Abrasion NOS
428   Tendon injury
429   Arthralgia
430   Skin laceration
431   Influenza
432
433

434 **Supplementary Note 2**
435 Subject: SUB73511
436 verification code: d3feabcf82
437 Meta Information
438   race: White
439   gender: Male
440   age_reported: 45
441   arm_accession: ARM4
442 Blood Tests
443   ('study_time_collected: -15 Days', 'name_reported: RBC', 'result_value_reported: 5.45',
444 'result_unit_reported: 10*6 cells/uL')
445   ('study_time_collected: -15 Days', 'name_reported: HEMATOCRIT',
446 'result_value_reported: 47', 'result_unit_reported: %')
447   ('study_time_collected: -15 Days', 'name_reported: PLATELET COUNT',
448 'result_value_reported: 271', 'result_unit_reported: 10*3 cells/uL')
449   ('study_time_collected: -15 Days', 'name_reported: WBC', 'result_value_reported: 6.7',
450 'result_unit_reported: 10*3 cells/uL')
451   ('study_time_collected: -15 Days', 'name_reported: HEMOGLOBIN',
452 'result_value_reported: 15.8', 'result_unit_reported: g/dL')
453   ('study_time_collected: -15 Days', 'name_reported: MCV', 'result_value_reported: 86',
454 'result_unit_reported: um*3')
455   ('study_time_collected: -15 Days', 'name_reported: Total IgE', 'result_value_reported: 58',
456 'result_unit_reported: unknown')
457   ('study_time_collected: -15 Days', 'name_reported: MCHC', 'result_value_reported: 34',
458 'result_unit_reported: %')
459   ('study_time_collected: -15 Days', 'name_reported: MCH', 'result_value_reported: 29',
460 'result_unit_reported: %')
461   ('study_time_collected: 0 Days', 'name_reported: LARGE UNCLASSIFIED CELLS',
462 'result_value_reported: 2.2', 'result_unit_reported: NULL')
463   ('study_time_collected: 0 Days', 'name_reported: MONOCYTES', 'result_value_reported:
464 4.5', 'result_unit_reported: %')
465   ('study_time_collected: 0 Days', 'name_reported: HEMOGLOBIN',
466 'result_value_reported: 14.8', 'result_unit_reported: g/dL')
467   ('study_time_collected: 0 Days', 'name_reported: MCV', 'result_value_reported: 87',
468 'result_unit_reported: um*3')
469   ('study_time_collected: 0 Days', 'name_reported: EOSINOPHILS',
470 'result_value_reported: 1.9', 'result_unit_reported: %')
471   ('study_time_collected: 0 Days', 'name_reported: SEGMENTED NEUTROPHILS',
472 'result_value_reported: 56.3', 'result_unit_reported: %')
473   ('study_time_collected: 0 Days', 'name_reported: HEMATOCRIT',
474 'result_value_reported: 44', 'result_unit_reported: %')
475   ('study_time_collected: 0 Days', 'name_reported: WBC', 'result_value_reported: 6.8',
476 'result_unit_reported: 10*3 cells/uL')
477   ('study_time_collected: 0 Days', 'name_reported: BASOPHILS', 'result_value_reported:
478 0.6', 'result_unit_reported: %')

479   ('study_time_collected: 0 Days', 'name_reported: MCH', 'result_value_reported: 29',
480 'result_unit_reported: %')
481   ('study_time_collected: 0 Days', 'name_reported: LYMPHOCYTES',
482 'result_value_reported: 34.5', 'result_unit_reported: %')
483   ('study_time_collected: 0 Days', 'name_reported: MCHC', 'result_value_reported: 34',
484 'result_unit_reported: %')
485   ('study_time_collected: 0 Days', 'name_reported: RBC', 'result_value_reported: 5.09',
486 'result_unit_reported: 10*6 cells/uL')
487   ('study_time_collected: 0 Days', 'name_reported: PLATELET COUNT',
488 'result_value_reported: 295', 'result_unit_reported: 10*3 cells/uL')
489   ('study_time_collected: 114 Days', 'name_reported: LARGE UNCLASSIFIED CELLS',
490 'result_value_reported: 2.4', 'result_unit_reported: NULL')
491   ('study_time_collected: 114 Days', 'name_reported: PLATELET COUNT',
492 'result_value_reported: 278', 'result_unit_reported: 10*3 cells/uL')
493   ('study_time_collected: 114 Days', 'name_reported: HEMATOCRIT',
494 'result_value_reported: 46', 'result_unit_reported: %')
495   ('study_time_collected: 114 Days', 'name_reported: BASOPHILS',
496 'result_value_reported: 0.6', 'result_unit_reported: %')
497   ('study_time_collected: 114 Days', 'name_reported: SEGMENTED NEUTROPHILS',
498 'result_value_reported: 57.3', 'result_unit_reported: %')
499   ('study_time_collected: 114 Days', 'name_reported: EOSINOPHILS',
500 'result_value_reported: 2', 'result_unit_reported: %')
501   ('study_time_collected: 114 Days', 'name_reported: LYMPHOCYTES',
502 'result_value_reported: 32.5', 'result_unit_reported: %')
503   ('study_time_collected: 114 Days', 'name_reported: MCH', 'result_value_reported: 29',
504 'result_unit_reported: %')
505   ('study_time_collected: 114 Days', 'name_reported: MCHC', 'result_value_reported: 34',
506 'result_unit_reported: %')
507   ('study_time_collected: 114 Days', 'name_reported: WBC', 'result_value_reported: 7.3',
508 'result_unit_reported: 10*3 cells/uL')
509   ('study_time_collected: 114 Days', 'name_reported: MONOCYTES',
510 'result_value_reported: 5.2', 'result_unit_reported: %')
511   ('study_time_collected: 114 Days', 'name_reported: HEMOGLOBIN',
512 'result_value_reported: 15.5', 'result_unit_reported: g/dL')
513   ('study_time_collected: 114 Days', 'name_reported: RBC', 'result_value_reported: 5.45',
514 'result_unit_reported: 10*6 cells/uL')
515   ('study_time_collected: 114 Days', 'name_reported: MCV', 'result_value_reported: 85',
516 'result_unit_reported: um*3')
517   ('study_time_collected: 140 Days', 'name_reported: MCV', 'result_value_reported: 84',
518 'result_unit_reported: um*3')
519   ('study_time_collected: 140 Days', 'name_reported: HEMOGLOBIN',
520 'result_value_reported: 15.1', 'result_unit_reported: g/dL')
521   ('study_time_collected: 140 Days', 'name_reported: LARGE UNCLASSIFIED CELLS',
522 'result_value_reported: 0.9', 'result_unit_reported: NULL')
523   ('study_time_collected: 140 Days', 'name_reported: BASOPHILS',
524 'result_value_reported: 0.4', 'result_unit_reported: %')

525   ('study_time_collected: 140 Days', 'name_reported: MONOCYTES',
526   'result_value_reported: 3.5', 'result_unit_reported: %')
527   ('study_time_collected: 140 Days', 'name_reported: WBC', 'result_value_reported: 12.7',
528   'result_unit_reported: 10*3 cells/uL')
529   ('study_time_collected: 140 Days', 'name_reported: MCH', 'result_value_reported: 29',
530   'result_unit_reported: %')
531   ('study_time_collected: 140 Days', 'name_reported: EOSINOPHILS',
532   'result_value_reported: 0.5', 'result_unit_reported: %')
533   ('study_time_collected: 140 Days', 'name_reported: MCHC', 'result_value_reported: 34',
534   'result_unit_reported: %')
535   ('study_time_collected: 140 Days', 'name_reported: SEGMENTED NEUTROPHILS',
536   'result_value_reported: 77.8', 'result_unit_reported: %')
537   ('study_time_collected: 140 Days', 'name_reported: HEMATOCRIT',
538   'result_value_reported: 44', 'result_unit_reported: %')
539   ('study_time_collected: 140 Days', 'name_reported: PLATELET COUNT',
540   'result_value_reported: 275', 'result_unit_reported: 10*3 cells/uL')
541   ('study_time_collected: 140 Days', 'name_reported: LYMPHOCYTES',
542   'result_value_reported: 16.9', 'result_unit_reported: %')
543   ('study_time_collected: 140 Days', 'name_reported: RBC', 'result_value_reported: 5.26',
544   'result_unit_reported: 10*6 cells/uL')
545   ('study_time_collected: 155 Days', 'name_reported: MCV', 'result_value_reported: 84',
546   'result_unit_reported: um*3')
547   ('study_time_collected: 155 Days', 'name_reported: MONOCYTES',
548   'result_value_reported: 4.8', 'result_unit_reported: %')
549   ('study_time_collected: 155 Days', 'name_reported: HEMATOCRIT',
550   'result_value_reported: 44', 'result_unit_reported: %')
551   ('study_time_collected: 155 Days', 'name_reported: PLATELET COUNT',
552   'result_value_reported: 286', 'result_unit_reported: 10*3 cells/uL')
553   ('study_time_collected: 155 Days', 'name_reported: LYMPHOCYTES',
554   'result_value_reported: 33.3', 'result_unit_reported: %')
555   ('study_time_collected: 155 Days', 'name_reported: MCH', 'result_value_reported: 30',
556   'result_unit_reported: %')
557   ('study_time_collected: 155 Days', 'name_reported: LARGE UNCLASSIFIED CELLS',
558   'result_value_reported: 1.7', 'result_unit_reported: NULL')
559   ('study_time_collected: 155 Days', 'name_reported: HEMOGLOBIN',
560   'result_value_reported: 15.7', 'result_unit_reported: g/dL')
561   ('study_time_collected: 155 Days', 'name_reported: BASOPHILS',
562   'result_value_reported: 0.9', 'result_unit_reported: %')
563   ('study_time_collected: 155 Days', 'name_reported: WBC', 'result_value_reported: 7.2',
564   'result_unit_reported: 10*3 cells/uL')
565   ('study_time_collected: 155 Days', 'name_reported: EOSINOPHILS',
566   'result_value_reported: 2.4', 'result_unit_reported: %')
567   ('study_time_collected: 155 Days', 'name_reported: SEGMENTED NEUTROPHILS',
568   'result_value_reported: 56.9', 'result_unit_reported: %')
569   ('study_time_collected: 155 Days', 'name_reported: RBC', 'result_value_reported: 5.21',
570   'result_unit_reported: 10*6 cells/uL')

571   ('study_time_collected: 155 Days', 'name_reported: MCHC', 'result_value_reported: 36',
572   'result_unit_reported: %')
573   ('study_time_collected: 28 Days', 'name_reported: SEGMENTED NEUTROPHILS',
574   'result_value_reported: 64.3', 'result_unit_reported: %')
575   ('study_time_collected: 28 Days', 'name_reported: HEMOGLOBIN',
576   'result_value_reported: 15.8', 'result_unit_reported: g/dL')
577   ('study_time_collected: 28 Days', 'name_reported: LARGE UNCLASSIFIED CELLS',
578   'result_value_reported: 1.7', 'result_unit_reported: NULL')
579   ('study_time_collected: 28 Days', 'name_reported: RBC', 'result_value_reported: 5.44',
580   'result_unit_reported: 10*6 cells/uL')
581   ('study_time_collected: 28 Days', 'name_reported: MCV', 'result_value_reported: 87',
582   'result_unit_reported: um*3')
583   ('study_time_collected: 28 Days', 'name_reported: BASOPHILS', 'result_value_reported:
584   0.7', 'result_unit_reported: %')
585   ('study_time_collected: 28 Days', 'name_reported: MCHC', 'result_value_reported: 33',
586   'result_unit_reported: %')
587   ('study_time_collected: 28 Days', 'name_reported: PLATELET COUNT',
588   'result_value_reported: 267', 'result_unit_reported: 10*3 cells/uL')
589   ('study_time_collected: 28 Days', 'name_reported: WBC', 'result_value_reported: 6.5',
590   'result_unit_reported: 10*3 cells/uL')
591   ('study_time_collected: 28 Days', 'name_reported: EOSINOPHILS',
592   'result_value_reported: 1.3', 'result_unit_reported: %')
593   ('study_time_collected: 28 Days', 'name_reported: LYMPHOCYTES',
594   'result_value_reported: 29.2', 'result_unit_reported: %')
595   ('study_time_collected: 28 Days', 'name_reported: HEMATOCRIT',
596   'result_value_reported: 47', 'result_unit_reported: %')
597   ('study_time_collected: 28 Days', 'name_reported: MONOCYTES',
598   'result_value_reported: 3', 'result_unit_reported: %')
599   ('study_time_collected: 28 Days', 'name_reported: MCH', 'result_value_reported: 29',
600   'result_unit_reported: %')
601   ('study_time_collected: 365 Days', 'name_reported: MCHC', 'result_value_reported: 33',
602   'result_unit_reported: %')
603   ('study_time_collected: 365 Days', 'name_reported: HEMOGLOBIN',
604   'result_value_reported: 15.1', 'result_unit_reported: g/dL')
605   ('study_time_collected: 365 Days', 'name_reported: SEGMENTED NEUTROPHILS',
606   'result_value_reported: 52.8', 'result_unit_reported: %')
607   ('study_time_collected: 365 Days', 'name_reported: LARGE UNCLASSIFIED CELLS',
608   'result_value_reported: 1.7', 'result_unit_reported: NULL')
609   ('study_time_collected: 365 Days', 'name_reported: MCV', 'result_value_reported: 87',
610   'result_unit_reported: um*3')
611   ('study_time_collected: 365 Days', 'name_reported: MONOCYTES',
612   'result_value_reported: 6.2', 'result_unit_reported: %')
613   ('study_time_collected: 365 Days', 'name_reported: RBC', 'result_value_reported: 5.19',
614   'result_unit_reported: 10*6 cells/uL')
615   ('study_time_collected: 365 Days', 'name_reported: HEMATOCRIT',
616   'result_value_reported: 45', 'result_unit_reported: %')

617   ('study_time_collected: 365 Days', 'name_reported: EOSINOPHILS',
618   'result_value_reported: 2.7', 'result_unit_reported: %')
619   ('study_time_collected: 365 Days', 'name_reported: LYMPHOCYTES',
620   'result_value_reported: 36.3', 'result_unit_reported: %')
621   ('study_time_collected: 365 Days', 'name_reported: MCH', 'result_value_reported: 29',
622   'result_unit_reported: %')
623   ('study_time_collected: 365 Days', 'name_reported: WBC', 'result_value_reported: 5.9',
624   'result_unit_reported: 10*3 cells/uL')
625   ('study_time_collected: 365 Days', 'name_reported: BASOPHILS',
626   'result_value_reported: 0.3', 'result_unit_reported: %')
627   ('study_time_collected: 365 Days', 'name_reported: PLATELET COUNT',
628   'result_value_reported: 252', 'result_unit_reported: 10*3 cells/uL')
629   ('study_time_collected: 56 Days', 'name_reported: RBC', 'result_value_reported: 5.17',
630   'result_unit_reported: 10*6 cells/uL')
631   ('study_time_collected: 56 Days', 'name_reported: SEGMENTED NEUTROPHILS',
632   'result_value_reported: 58.9', 'result_unit_reported: %')
633   ('study_time_collected: 56 Days', 'name_reported: PLATELET COUNT',
634   'result_value_reported: 270', 'result_unit_reported: 10*3 cells/uL')
635   ('study_time_collected: 56 Days', 'name_reported: MCH', 'result_value_reported: 30',
636   'result_unit_reported: %')
637   ('study_time_collected: 56 Days', 'name_reported: BASOPHILS', 'result_value_reported:
638   0.7', 'result_unit_reported: %')
639   ('study_time_collected: 56 Days', 'name_reported: LARGE UNCLASSIFIED CELLS',
640   'result_value_reported: 1.6', 'result_unit_reported: NULL')
641   ('study_time_collected: 56 Days', 'name_reported: MCHC', 'result_value_reported: 35',
642   'result_unit_reported: %')
643   ('study_time_collected: 56 Days', 'name_reported: EOSINOPHILS',
644   'result_value_reported: 1.7', 'result_unit_reported: %')
645   ('study_time_collected: 56 Days', 'name_reported: HEMATOCRIT',
646   'result_value_reported: 44', 'result_unit_reported: %')
647   ('study_time_collected: 56 Days', 'name_reported: MCV', 'result_value_reported: 86',
648   'result_unit_reported: um*3')
649   ('study_time_collected: 56 Days', 'name_reported: WBC', 'result_value_reported: 6.8',
650   'result_unit_reported: 10*3 cells/uL')
651   ('study_time_collected: 56 Days', 'name_reported: MONOCYTES',
652   'result_value_reported: 4.3', 'result_unit_reported: %')
653   ('study_time_collected: 56 Days', 'name_reported: LYMPHOCYTES',
654   'result_value_reported: 32.8', 'result_unit_reported: %')
655   ('study_time_collected: 56 Days', 'name_reported: HEMOGLOBIN',
656   'result_value_reported: 15.3', 'result_unit_reported: g/dL')
657   ('study_time_collected: 87 Days', 'name_reported: WBC', 'result_value_reported: 6.9',
658   'result_unit_reported: 10*3 cells/uL')
659   ('study_time_collected: 87 Days', 'name_reported: RBC', 'result_value_reported: 5.21',
660   'result_unit_reported: 10*6 cells/uL')
661   ('study_time_collected: 87 Days', 'name_reported: MCH', 'result_value_reported: 29',
662   'result_unit_reported: %')

663   ('study_time_collected: 87 Days', 'name_reported: EOSINOPHILS',
664 'result_value_reported: 1.5', 'result_unit_reported: %')
665   ('study_time_collected: 87 Days', 'name_reported: LYMPHOCYTES',
666 'result_value_reported: 39.1', 'result_unit_reported: %')
667   ('study_time_collected: 87 Days', 'name_reported: MCV', 'result_value_reported: 84',
668 'result_unit_reported: um*3')
669   ('study_time_collected: 87 Days', 'name_reported: SEGMENTED NEUTROPHILS',
670 'result_value_reported: 51.6', 'result_unit_reported: %')
671   ('study_time_collected: 87 Days', 'name_reported: LARGE UNCLASSIFIED CELLS',
672 'result_value_reported: 1.8', 'result_unit_reported: NULL')
673   ('study_time_collected: 87 Days', 'name_reported: HEMOGLOBIN',
674 'result_value_reported: 14.9', 'result_unit_reported: g/dL')
675   ('study_time_collected: 87 Days', 'name_reported: PLATELET COUNT',
676 'result_value_reported: 238', 'result_unit_reported: 10*3 cells/uL')
677   ('study_time_collected: 87 Days', 'name_reported: HEMATOCRIT',
678 'result_value_reported: 44', 'result_unit_reported: %')
679   ('study_time_collected: 87 Days', 'name_reported: BASOPHILS', 'result_value_reported:
680 0.5', 'result_unit_reported: %')
681   ('study_time_collected: 87 Days', 'name_reported: MCHC', 'result_value_reported: 34',
682 'result_unit_reported: %')
683   ('study_time_collected: 87 Days', 'name_reported: MONOCYTES',
684 'result_value_reported: 5.5', 'result_unit_reported: %')
685
686 Assay Measurements
687   ('study_time_collected: 100', 'analyte: IgG-a Ragweed', 'value_reported: 2307',
688 'unit_reported: ng/ml')
689   ('study_time_collected: 100', 'analyte: IgE-a Amb a', 'value_reported: 2631.5',
690 'unit_reported: U/ml')
691   ('study_time_collected: 100', 'analyte: IgG-a Amb a', 'value_reported: 4979.2',
692 'unit_reported: U/ml')
693   ('study_time_collected: 100', 'analyte: Free IgE Concentration', 'value_reported: 21.967',
694 'unit_reported: ng/ml')
695   ('study_time_collected: 100', 'analyte: IgE-a Ragweed', 'value_reported: 47.9',
696 'unit_reported: kIUa/ml')
697   ('study_time_collected: 66', 'analyte: Free IgE Concentration', 'value_reported: 15.556',
698 'unit_reported: ng/ml')
699   ('study_time_collected: 66', 'analyte: IgG-a Amb a', 'value_reported: 390.3',
700 'unit_reported: U/ml')
701   ('study_time_collected: 66', 'analyte: IgE-a Ragweed', 'value_reported: 32.4',
702 'unit_reported: kIUa/ml')
703   ('study_time_collected: 66', 'analyte: IgE-a Amb a', 'value_reported: 670.9',
704 'unit_reported: U/ml')
705   ('study_time_collected: 66', 'analyte: IgG-a Ragweed', 'value_reported: 100',
706 'unit_reported: ng/ml')
707   ('study_time_collected: 73', 'analyte: Free IgE Concentration', 'value_reported: 19.712',
708 'unit_reported: ng/ml')

709   ('study_time_collected: 73', 'analyte: IgE-a Amb a', 'value_reported: 1005.5',
710 'unit_reported: U/ml')
711   ('study_time_collected: 73', 'analyte: IgG-a Amb a', 'value_reported: 659.7',
712 'unit_reported: U/ml')
713   ('study_time_collected: 73', 'analyte: IgE-a Ragweed', 'value_reported: 41', 'unit_reported:
714 kIUa/ml')
715   ('study_time_collected: 73', 'analyte: IgG-a Ragweed', 'value_reported: 290',
716 'unit_reported: ng/ml')
717
718 Adverse Reactions
719   Parotid duct cyst
720   Chest tightness
721   Injection site reaction NOS
722   Cough
723   Sinus congestion
724   Injection site pruritus
725   Dizziness
726   Rash pruritic
727   Sinus headache
728   Injection site pruritus
729   Blood creatine phosphokinase increased
730   Blood pressure decreased
731   Bursitis
732   Lower respiratory tract infection NOS
733   Bronchitis NOS
734   Nasopharyngitis
735   Sinusitis NOS
736   Throat tightness
737   Injection site pruritus
738   Dermatitis atopic
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Supplementary Note 3

Subject: SUB73491
verification code: 741be0d4c0
Meta Information
      race: Black or African American
      gender: Male
      age_reported: 28
      arm_accession: ARM3
Blood Tests
      ('study_time_collected: -20 Days', 'name_reported: MCV', '90', 'um*3')
      ('study_time_collected: -20 Days', 'name_reported: WBC', '7.2', '10*3 cells/uL')
      ('study_time_collected: -20 Days', 'name_reported: MONOCYTES', '5.4', '%')
      ('study_time_collected: -20 Days', 'name_reported: MCHC', '34', '%')
      ('study_time_collected: -20 Days', 'name_reported: RBC', '4.71', '10*6 cells/uL')
      ('study_time_collected: -20 Days', 'name_reported: BASOPHILS', '0.2', '%')
      ('study_time_collected: -20 Days', 'name_reported: MCH', '30', '%')
      ('study_time_collected: -20 Days', 'name_reported: Total IgE', '34', 'unknown')
      ('study_time_collected: -20 Days', 'name_reported: HEMOGLOBIN', '14.1', 'g/dL')
      ('study_time_collected: -20 Days', 'name_reported: SEGMENTED NEUTROPHILS', '52.7', '%')
      ('study_time_collected: -20 Days', 'name_reported: LYMPHOCYTES', '37.1', '%')
      ('study_time_collected: -20 Days', 'name_reported: HEMATOCRIT', '42', '%')
      ('study_time_collected: -20 Days', 'name_reported: LARGE UNCLASSIFIED CELLS', '3.4', 'NULL')
      ('study_time_collected: -20 Days', 'name_reported: EOSINOPHILS', '1.7', '%')
      ('study_time_collected: -20 Days', 'name_reported: PLATELET COUNT', '194', '10*3 cells/uL')
      ('study_time_collected: 0 Days', 'name_reported: EOSINOPHILS', '4.6', '%')
      ('study_time_collected: 0 Days', 'name_reported: RBC', '4.45', '10*6 cells/uL')
      ('study_time_collected: 0 Days', 'name_reported: PLATELET COUNT', '223', '10*3 cells/uL')
      ('study_time_collected: 0 Days', 'name_reported: HEMATOCRIT', '41', '%')
      ('study_time_collected: 0 Days', 'name_reported: MCV', '92', 'um*3')
      ('study_time_collected: 0 Days', 'name_reported: MCHC', '33', '%')
      ('study_time_collected: 0 Days', 'name_reported: BASOPHILS', '0.4', '%')
      ('study_time_collected: 0 Days', 'name_reported: HEMOGLOBIN', '13.5', 'g/dL')
      ('study_time_collected: 0 Days', 'name_reported: MCH', '30', '%')
      ('study_time_collected: 0 Days', 'name_reported: MONOCYTES', '6.6', '%')
      ('study_time_collected: 0 Days', 'name_reported: LYMPHOCYTES', '41.2', '%')
      ('study_time_collected: 0 Days', 'name_reported: WBC', '5.9', '10*3 cells/uL')
      ('study_time_collected: 0 Days', 'name_reported: BANDS', '0', '%')
      ('study_time_collected: 0 Days', 'name_reported: SEGMENTED NEUTROPHILS', '44.4', '%')
      ('study_time_collected: 0 Days', 'name_reported: LARGE UNCLASSIFIED CELLS', '2.8', 'NULL')

801   ('study_time_collected: 119 Days', 'name_reported: LYMPHOCYTES', '38.1', '%')
802   ('study_time_collected: 119 Days', 'name_reported: WBC', '5.4', '10*3 cells/uL')
803   ('study_time_collected: 119 Days', 'name_reported: RBC', '4.55', '10*6 cells/uL')
804   ('study_time_collected: 119 Days', 'name_reported: MCHC', '34', '%')
805   ('study_time_collected: 119 Days', 'name_reported: MCV', '88', 'um*3')
806   ('study_time_collected: 119 Days', 'name_reported: PLATELET COUNT', '189', '10*3
807 cells/uL')
808   ('study_time_collected: 119 Days', 'name_reported: SEGMENTED NEUTROPHILS',
809 '50.2', '%')
810   ('study_time_collected: 119 Days', 'name_reported: MONOCYTES', '6.2', '%')
811   ('study_time_collected: 119 Days', 'name_reported: HEMOGLOBIN', '13.7', 'g/dL')
812   ('study_time_collected: 119 Days', 'name_reported: EOSINOPHILS', '2.4', '%')
813   ('study_time_collected: 119 Days', 'name_reported: LARGE UNCLASSIFIED CELLS',
814 '2.6', 'NULL')
815   ('study_time_collected: 119 Days', 'name_reported: MCH', '30', '%')
816   ('study_time_collected: 119 Days', 'name_reported: BASOPHILS', '0.5', '%')
817   ('study_time_collected: 119 Days', 'name_reported: HEMATOCRIT', '40', '%')
818   ('study_time_collected: 147 Days', 'name_reported: MCH', '30', '%')
819   ('study_time_collected: 147 Days', 'name_reported: HEMOGLOBIN', '13.7', 'g/dL')
820   ('study_time_collected: 147 Days', 'name_reported: HEMATOCRIT', '41', '%')
821   ('study_time_collected: 147 Days', 'name_reported: MCV', '90', 'um*3')
822   ('study_time_collected: 147 Days', 'name_reported: EOSINOPHILS', '2.6', '%')
823   ('study_time_collected: 147 Days', 'name_reported: LARGE UNCLASSIFIED CELLS',
824 '2.4', 'NULL')
825   ('study_time_collected: 147 Days', 'name_reported: SEGMENTED NEUTROPHILS',
826 '54.2', '%')
827   ('study_time_collected: 147 Days', 'name_reported: MONOCYTES', '6.5', '%')
828   ('study_time_collected: 147 Days', 'name_reported: RBC', '4.51', '10*6 cells/uL')
829   ('study_time_collected: 147 Days', 'name_reported: PLATELET COUNT', '203', '10*3
830 cells/uL')
831   ('study_time_collected: 147 Days', 'name_reported: WBC', '6.9', '10*3 cells/uL')
832   ('study_time_collected: 147 Days', 'name_reported: LYMPHOCYTES', '34', '%')
833   ('study_time_collected: 147 Days', 'name_reported: MCHC', '34', '%')
834   ('study_time_collected: 147 Days', 'name_reported: BASOPHILS', '0.3', '%')
835   ('study_time_collected: 160 Days', 'name_reported: RBC', '4.29', '10*6 cells/uL')
836   ('study_time_collected: 160 Days', 'name_reported: MONOCYTES', '7.3', '%')
837   ('study_time_collected: 160 Days', 'name_reported: HEMATOCRIT', '39', '%')
838   ('study_time_collected: 160 Days', 'name_reported: MCHC', '34', '%')
839   ('study_time_collected: 160 Days', 'name_reported: LYMPHOCYTES', '37', '%')
840   ('study_time_collected: 160 Days', 'name_reported: MCH', '31', '%')
841   ('study_time_collected: 160 Days', 'name_reported: HEMOGLOBIN', '13.3', 'g/dL')
842   ('study_time_collected: 160 Days', 'name_reported: BASOPHILS', '0.3', '%')
843   ('study_time_collected: 160 Days', 'name_reported: EOSINOPHILS', '2.8', '%')
844   ('study_time_collected: 160 Days', 'name_reported: LARGE UNCLASSIFIED CELLS',
845 '2.9', 'NULL')
846   ('study_time_collected: 160 Days', 'name_reported: WBC', '4.7', '10*3 cells/uL')

847 ('study_time_collected: 160 Days', 'name_reported: PLATELET COUNT', '198', '10*3
848 cells/uL')
849 ('study_time_collected: 160 Days', 'name_reported: MCV', '90', 'um*3')
850 ('study_time_collected: 160 Days', 'name_reported: SEGMENTED NEUTROPHILS',
851 '49.7', '%')
852 ('study_time_collected: 28 Days', 'name_reported: WBC', '6.2', '10*3 cells/uL')
853 ('study_time_collected: 28 Days', 'name_reported: BASOPHILS', '0', '%')
854 ('study_time_collected: 28 Days', 'name_reported: BANDS', '4', '%')
855 ('study_time_collected: 28 Days', 'name_reported: PLATELET COUNT', '235', '10*3
856 cells/uL')
857 ('study_time_collected: 28 Days', 'name_reported: LYMPHOCYTES', '49', '%')
858 ('study_time_collected: 28 Days', 'name_reported: MCHC', '33', '%')
859 ('study_time_collected: 28 Days', 'name_reported: EOSINOPHILS', '0', '%')
860 ('study_time_collected: 28 Days', 'name_reported: SEGMENTED NEUTROPHILS', '43',
861 '%')
862 ('study_time_collected: 28 Days', 'name_reported: HEMATOCRIT', '43', '%')
863 ('study_time_collected: 28 Days', 'name_reported: MCV', '91', 'um*3')
864 ('study_time_collected: 28 Days', 'name_reported: RBC', '4.68', '10*6 cells/uL')
865 ('study_time_collected: 28 Days', 'name_reported: MCH', '30', '%')
866 ('study_time_collected: 28 Days', 'name_reported: HEMOGLOBIN', '14.2', 'g/dL')
867 ('study_time_collected: 28 Days', 'name_reported: MONOCYTES', '4', '%')
868 ('study_time_collected: 369 Days', 'name_reported: BASOPHILS', '0.3', '%')
869 ('study_time_collected: 369 Days', 'name_reported: SEGMENTED NEUTROPHILS',
870 '47.7', '%')
871 ('study_time_collected: 369 Days', 'name_reported: LYMPHOCYTES', '39.5', '%')
872 ('study_time_collected: 369 Days', 'name_reported: EOSINOPHILS', '2.3', '%')
873 ('study_time_collected: 369 Days', 'name_reported: HEMOGLOBIN', '14.4', 'g/dL')
874 ('study_time_collected: 369 Days', 'name_reported: LARGE UNCLASSIFIED CELLS',
875 '2.8', 'NULL')
876 ('study_time_collected: 369 Days', 'name_reported: HEMATOCRIT', '42', '%')
877 ('study_time_collected: 369 Days', 'name_reported: MCH', '31', '%')
878 ('study_time_collected: 369 Days', 'name_reported: MONOCYTES', '7.4', '%')
879 ('study_time_collected: 369 Days', 'name_reported: MCV', '91', 'um*3')
880 ('study_time_collected: 369 Days', 'name_reported: MCHC', '34', '%')
881 ('study_time_collected: 369 Days', 'name_reported: RBC', '4.62', '10*6 cells/uL')
882 ('study_time_collected: 369 Days', 'name_reported: WBC', '5.2', '10*3 cells/uL')
883 ('study_time_collected: 369 Days', 'name_reported: PLATELET COUNT', '179', '10*3
884 cells/uL')
885 ('study_time_collected: 56 Days', 'name_reported: BANDS', '1', '%')
886 ('study_time_collected: 56 Days', 'name_reported: MCV', '90', 'um*3')
887 ('study_time_collected: 56 Days', 'name_reported: HEMATOCRIT', '43', '%')
888 ('study_time_collected: 56 Days', 'name_reported: MONOCYTES', '9', '%')
889 ('study_time_collected: 56 Days', 'name_reported: HEMOGLOBIN', '14.5', 'g/dL')
890 ('study_time_collected: 56 Days', 'name_reported: BASOPHILS', '0', '%')
891 ('study_time_collected: 56 Days', 'name_reported: MCHC', '34', '%')
892 ('study_time_collected: 56 Days', 'name_reported: RBC', '4.74', '10*6 cells/uL')

893 ('study_time_collected: 56 Days', 'name_reported: MCH', '31', '%')
894 ('study_time_collected: 56 Days', 'name_reported: LYMPHOCYTES', '51', '%')
895 ('study_time_collected: 56 Days', 'name_reported: PLATELET COUNT', '221', '10*3
896 cells/uL')
897 ('study_time_collected: 56 Days', 'name_reported: WBC', '6.7', '10*3 cells/uL')
898 ('study_time_collected: 56 Days', 'name_reported: SEGMENTED NEUTROPHILS', '39',
899 '%')
900 ('study_time_collected: 56 Days', 'name_reported: EOSINOPHILS', '0', '%')
901 ('study_time_collected: 91 Days', 'name_reported: BASOPHILS', '0.3', '%')
902 ('study_time_collected: 91 Days', 'name_reported: LYMPHOCYTES', '30.3', '%')
903 ('study_time_collected: 91 Days', 'name_reported: PLATELET COUNT', '199', '10*3
904 cells/uL')
905 ('study_time_collected: 91 Days', 'name_reported: MONOCYTES', '5.5', '%')
906 ('study_time_collected: 91 Days', 'name_reported: EOSINOPHILS', '1.9', '%')
907 ('study_time_collected: 91 Days', 'name_reported: SEGMENTED NEUTROPHILS',
908 '59.6', '%')
909 ('study_time_collected: 91 Days', 'name_reported: MCHC', '35', '%')
910 ('study_time_collected: 91 Days', 'name_reported: HEMOGLOBIN', '13.8', 'g/dL')
911 ('study_time_collected: 91 Days', 'name_reported: LARGE UNCLASSIFIED CELLS',
912 '2.4', 'NULL')
913 ('study_time_collected: 91 Days', 'name_reported: RBC', '4.53', '10*6 cells/uL')
914 ('study_time_collected: 91 Days', 'name_reported: MCH', '30', '%')
915 ('study_time_collected: 91 Days', 'name_reported: MCV', '88', 'um*3')
916 ('study_time_collected: 91 Days', 'name_reported: HEMATOCRIT', '40', '%')
917 ('study_time_collected: 91 Days', 'name_reported: WBC', '6.8', '10*3 cells/uL')
918
919 Assay Measurements
920 ('study_time_collected: -8', 'analyte: IgE-a Amb a', '28.3', 'U/ml')
921 ('study_time_collected: -8', 'analyte: IgG-a Amb a', '43', 'U/ml')
922 ('study_time_collected: -8', 'analyte: IgE-a Ragweed', '1.71', 'kIUa/ml')
923 ('study_time_collected: -8', 'analyte: Free IgE Concentration', '89.92', 'ng/ml')
924 ('study_time_collected: -8', 'analyte: IgG-a Ragweed', '100', 'ng/ml')
925 ('study_time_collected: 105', 'analyte: IgG-a Amb a', '511.5', 'U/ml')
926 ('study_time_collected: 105', 'analyte: IgE-a Amb a', '3340', 'U/ml')
927 ('study_time_collected: 105', 'analyte: IgE-a Ragweed', '71.1', 'kIUa/ml')
928 ('study_time_collected: 105', 'analyte: Free IgE Concentration', '17.376', 'ng/ml')
929 ('study_time_collected: 105', 'analyte: IgG-a Ragweed', '385', 'ng/ml')
930 ('study_time_collected: 202', 'analyte: Free IgE Concentration', '34.303', 'ng/ml')
931 ('study_time_collected: 202', 'analyte: IgE-a Ragweed', '45.6', 'kIUa/ml')
932 ('study_time_collected: 202', 'analyte: IgG-a Ragweed', '377', 'ng/ml')
933 ('study_time_collected: 202', 'analyte: IgG-a Amb a', '398', 'U/ml')
934 ('study_time_collected: 202', 'analyte: IgE-a Amb a', '2195', 'U/ml')
935
936 Adverse Reactions
937 None
938

Supplementary Note 4

Subject: SUB73511
verification code: d3feabcf82
Meta Information
      race: White
      gender: Male
      age_reported: 45
      arm_accession: ARM4
Blood Tests
      ('study_time_collected: -15 Days', 'name_reported: RBC', '5.45', '10*6 cells/uL')
      ('study_time_collected: -15 Days', 'name_reported: HEMATOCRIT', '47', '%')
      ('study_time_collected: -15 Days', 'name_reported: PLATELET COUNT', '271', '10*3 cells/uL')
      ('study_time_collected: -15 Days', 'name_reported: WBC', '6.7', '10*3 cells/uL')
      ('study_time_collected: -15 Days', 'name_reported: HEMOGLOBIN', '15.8', 'g/dL')
      ('study_time_collected: -15 Days', 'name_reported: MCV', '86', 'um*3')
      ('study_time_collected: -15 Days', 'name_reported: Total IgE', '58', 'unknown')
      ('study_time_collected: -15 Days', 'name_reported: MCHC', '34', '%')
      ('study_time_collected: -15 Days', 'name_reported: MCH', '29', '%')
      ('study_time_collected: 0 Days', 'name_reported: LARGE UNCLASSIFIED CELLS', '2.2', 'NULL')
      ('study_time_collected: 0 Days', 'name_reported: MONOCYTES', '4.5', '%')
      ('study_time_collected: 0 Days', 'name_reported: HEMOGLOBIN', '14.8', 'g/dL')
      ('study_time_collected: 0 Days', 'name_reported: MCV', '87', 'um*3')
      ('study_time_collected: 0 Days', 'name_reported: EOSINOPHILS', '1.9', '%')
      ('study_time_collected: 0 Days', 'name_reported: SEGMENTED NEUTROPHILS', '56.3', '%')
      ('study_time_collected: 0 Days', 'name_reported: HEMATOCRIT', '44', '%')
      ('study_time_collected: 0 Days', 'name_reported: WBC', '6.8', '10*3 cells/uL')
      ('study_time_collected: 0 Days', 'name_reported: BASOPHILS', '0.6', '%')
      ('study_time_collected: 0 Days', 'name_reported: MCH', '29', '%')
      ('study_time_collected: 0 Days', 'name_reported: LYMPHOCYTES', '34.5', '%')
      ('study_time_collected: 0 Days', 'name_reported: MCHC', '34', '%')
      ('study_time_collected: 0 Days', 'name_reported: RBC', '5.09', '10*6 cells/uL')
      ('study_time_collected: 0 Days', 'name_reported: PLATELET COUNT', '295', '10*3 cells/uL')
      ('study_time_collected: 114 Days', 'name_reported: LARGE UNCLASSIFIED CELLS', '2.4', 'NULL')
      ('study_time_collected: 114 Days', 'name_reported: PLATELET COUNT', '278', '10*3 cells/uL')
      ('study_time_collected: 114 Days', 'name_reported: HEMATOCRIT', '46', '%')
      ('study_time_collected: 114 Days', 'name_reported: BASOPHILS', '0.6', '%')
      ('study_time_collected: 114 Days', 'name_reported: SEGMENTED NEUTROPHILS', '57.3', '%')
      ('study_time_collected: 114 Days', 'name_reported: EOSINOPHILS', '2', '%')

985   ('study_time_collected: 114 Days', 'name_reported: LYMPHOCYTES', '32.5', '%')
986   ('study_time_collected: 114 Days', 'name_reported: MCH', '29', '%')
987   ('study_time_collected: 114 Days', 'name_reported: MCHC', '34', '%')
988   ('study_time_collected: 114 Days', 'name_reported: WBC', '7.3', '10*3 cells/uL')
989   ('study_time_collected: 114 Days', 'name_reported: MONOCYTES', '5.2', '%')
990   ('study_time_collected: 114 Days', 'name_reported: HEMOGLOBIN', '15.5', 'g/dL')
991   ('study_time_collected: 114 Days', 'name_reported: RBC', '5.45', '10*6 cells/uL')
992   ('study_time_collected: 114 Days', 'name_reported: MCV', '85', 'um*3')
993   ('study_time_collected: 140 Days', 'name_reported: MCV', '84', 'um*3')
994   ('study_time_collected: 140 Days', 'name_reported: HEMOGLOBIN', '15.1', 'g/dL')
995   ('study_time_collected: 140 Days', 'name_reported: LARGE UNCLASSIFIED CELLS',
996   '0.9', 'NULL')
997   ('study_time_collected: 140 Days', 'name_reported: BASOPHILS', '0.4', '%')
998   ('study_time_collected: 140 Days', 'name_reported: MONOCYTES', '3.5', '%')
999   ('study_time_collected: 140 Days', 'name_reported: WBC', '12.7', '10*3 cells/uL')
1000   ('study_time_collected: 140 Days', 'name_reported: MCH', '29', '%')
1001   ('study_time_collected: 140 Days', 'name_reported: EOSINOPHILS', '0.5', '%')
1002   ('study_time_collected: 140 Days', 'name_reported: MCHC', '34', '%')
1003   ('study_time_collected: 140 Days', 'name_reported: SEGMENTED NEUTROPHILS',
1004   '77.8', '%')
1005   ('study_time_collected: 140 Days', 'name_reported: HEMATOCRIT', '44', '%')
1006   ('study_time_collected: 140 Days', 'name_reported: PLATELET COUNT', '275', '10*3
1007   cells/uL')
1008   ('study_time_collected: 140 Days', 'name_reported: LYMPHOCYTES', '16.9', '%')
1009   ('study_time_collected: 140 Days', 'name_reported: RBC', '5.26', '10*6 cells/uL')
1010   ('study_time_collected: 155 Days', 'name_reported: MCV', '84', 'um*3')
1011   ('study_time_collected: 155 Days', 'name_reported: MONOCYTES', '4.8', '%')
1012   ('study_time_collected: 155 Days', 'name_reported: HEMATOCRIT', '44', '%')
1013   ('study_time_collected: 155 Days', 'name_reported: PLATELET COUNT', '286', '10*3
1014   cells/uL')
1015   ('study_time_collected: 155 Days', 'name_reported: LYMPHOCYTES', '33.3', '%')
1016   ('study_time_collected: 155 Days', 'name_reported: MCH', '30', '%')
1017   ('study_time_collected: 155 Days', 'name_reported: LARGE UNCLASSIFIED CELLS',
1018   '1.7', 'NULL')
1019   ('study_time_collected: 155 Days', 'name_reported: HEMOGLOBIN', '15.7', 'g/dL')
1020   ('study_time_collected: 155 Days', 'name_reported: BASOPHILS', '0.9', '%')
1021   ('study_time_collected: 155 Days', 'name_reported: WBC', '7.2', '10*3 cells/uL')
1022   ('study_time_collected: 155 Days', 'name_reported: EOSINOPHILS', '2.4', '%')
1023   ('study_time_collected: 155 Days', 'name_reported: SEGMENTED NEUTROPHILS',
1024   '56.9', '%')
1025   ('study_time_collected: 155 Days', 'name_reported: RBC', '5.21', '10*6 cells/uL')
1026   ('study_time_collected: 155 Days', 'name_reported: MCHC', '36', '%')
1027   ('study_time_collected: 28 Days', 'name_reported: SEGMENTED NEUTROPHILS',
1028   '64.3', '%')
1029   ('study_time_collected: 28 Days', 'name_reported: HEMOGLOBIN', '15.8', 'g/dL')

1030	('study_time_collected: 28 Days', 'name_reported: LARGE UNCLASSIFIED CELLS',
1031	'1.7', 'NULL')
1032	('study_time_collected: 28 Days', 'name_reported: RBC', '5.44', '10*6 cells/uL')
1033	('study_time_collected: 28 Days', 'name_reported: MCV', '87', 'um*3')
1034	('study_time_collected: 28 Days', 'name_reported: BASOPHILS', '0.7', '%')
1035	('study_time_collected: 28 Days', 'name_reported: MCHC', '33', '%')
1036	('study_time_collected: 28 Days', 'name_reported: PLATELET COUNT', '267', '10*3
1037	cells/uL')
1038	('study_time_collected: 28 Days', 'name_reported: WBC', '6.5', '10*3 cells/uL')
1039	('study_time_collected: 28 Days', 'name_reported: EOSINOPHILS', '1.3', '%')
1040	('study_time_collected: 28 Days', 'name_reported: LYMPHOCYTES', '29.2', '%')
1041	('study_time_collected: 28 Days', 'name_reported: HEMATOCRIT', '47', '%')
1042	('study_time_collected: 28 Days', 'name_reported: MONOCYTES', '3', '%')
1043	('study_time_collected: 28 Days', 'name_reported: MCH', '29', '%')
1044	('study_time_collected: 365 Days', 'name_reported: MCHC', '33', '%')
1045	('study_time_collected: 365 Days', 'name_reported: HEMOGLOBIN', '15.1', 'g/dL')
1046	('study_time_collected: 365 Days', 'name_reported: SEGMENTED NEUTROPHILS',
1047	'52.8', '%')
1048	('study_time_collected: 365 Days', 'name_reported: LARGE UNCLASSIFIED CELLS',
1049	'1.7', 'NULL')
1050	('study_time_collected: 365 Days', 'name_reported: MCV', '87', 'um*3')
1051	('study_time_collected: 365 Days', 'name_reported: MONOCYTES', '6.2', '%')
1052	('study_time_collected: 365 Days', 'name_reported: RBC', '5.19', '10*6 cells/uL')
1053	('study_time_collected: 365 Days', 'name_reported: HEMATOCRIT', '45', '%')
1054	('study_time_collected: 365 Days', 'name_reported: EOSINOPHILS', '2.7', '%')
1055	('study_time_collected: 365 Days', 'name_reported: LYMPHOCYTES', '36.3', '%')
1056	('study_time_collected: 365 Days', 'name_reported: MCH', '29', '%')
1057	('study_time_collected: 365 Days', 'name_reported: WBC', '5.9', '10*3 cells/uL')
1058	('study_time_collected: 365 Days', 'name_reported: BASOPHILS', '0.3', '%')
1059	('study_time_collected: 365 Days', 'name_reported: PLATELET COUNT', '252', '10*3
1060	cells/uL')
1061	('study_time_collected: 56 Days', 'name_reported: RBC', '5.17', '10*6 cells/uL')
1062	('study_time_collected: 56 Days', 'name_reported: SEGMENTED NEUTROPHILS',
1063	'58.9', '%')
1064	('study_time_collected: 56 Days', 'name_reported: PLATELET COUNT', '270', '10*3
1065	cells/uL')
1066	('study_time_collected: 56 Days', 'name_reported: MCH', '30', '%')
1067	('study_time_collected: 56 Days', 'name_reported: BASOPHILS', '0.7', '%')
1068	('study_time_collected: 56 Days', 'name_reported: LARGE UNCLASSIFIED CELLS',
1069	'1.6', 'NULL')
1070	('study_time_collected: 56 Days', 'name_reported: MCHC', '35', '%')
1071	('study_time_collected: 56 Days', 'name_reported: EOSINOPHILS', '1.7', '%')
1072	('study_time_collected: 56 Days', 'name_reported: HEMATOCRIT', '44', '%')
1073	('study_time_collected: 56 Days', 'name_reported: MCV', '86', 'um*3')
1074	('study_time_collected: 56 Days', 'name_reported: WBC', '6.8', '10*3 cells/uL')
1075	('study_time_collected: 56 Days', 'name_reported: MONOCYTES', '4.3', '%')

1076	('study_time_collected: 56 Days', 'name_reported: LYMPHOCYTES', '32.8', '%')
1077	('study_time_collected: 56 Days', 'name_reported: HEMOGLOBIN', '15.3', 'g/dL')
1078	('study_time_collected: 87 Days', 'name_reported: WBC', '6.9', '10*3 cells/uL')
1079	('study_time_collected: 87 Days', 'name_reported: RBC', '5.21', '10*6 cells/uL')
1080	('study_time_collected: 87 Days', 'name_reported: MCH', '29', '%')
1081	('study_time_collected: 87 Days', 'name_reported: EOSINOPHILS', '1.5', '%')
1082	('study_time_collected: 87 Days', 'name_reported: LYMPHOCYTES', '39.1', '%')
1083	('study_time_collected: 87 Days', 'name_reported: MCV', '84', 'um*3')
1084	('study_time_collected: 87 Days', 'name_reported: SEGMENTED NEUTROPHILS',
1085	'51.6', '%')
1086	('study_time_collected: 87 Days', 'name_reported: LARGE UNCLASSIFIED CELLS',
1087	'1.8', 'NULL')
1088	('study_time_collected: 87 Days', 'name_reported: HEMOGLOBIN', '14.9', 'g/dL')
1089	('study_time_collected: 87 Days', 'name_reported: PLATELET COUNT', '238', '10*3
1090	cells/uL')
1091	('study_time_collected: 87 Days', 'name_reported: HEMATOCRIT', '44', '%')
1092	('study_time_collected: 87 Days', 'name_reported: BASOPHILS', '0.5', '%')
1093	('study_time_collected: 87 Days', 'name_reported: MCHC', '34', '%')
1094	('study_time_collected: 87 Days', 'name_reported: MONOCYTES', '5.5', '%')
1095	
1096	Assay Measurements
1097	('study_time_collected: 100', 'analyte: IgG-a Ragweed', '2307', 'ng/ml')
1098	('study_time_collected: 100', 'analyte: IgE-a Amb a', '2631.5', 'U/ml')
1099	('study_time_collected: 100', 'analyte: IgG-a Amb a', '4979.2', 'U/ml')
1100	('study_time_collected: 100', 'analyte: Free IgE Concentration', '21.967', 'ng/ml')
1101	('study_time_collected: 100', 'analyte: IgE-a Ragweed', '47.9', 'kIUa/ml')
1102	('study_time_collected: 66', 'analyte: Free IgE Concentration', '15.556', 'ng/ml')
1103	('study_time_collected: 66', 'analyte: IgG-a Amb a', '390.3', 'U/ml')
1104	('study_time_collected: 66', 'analyte: IgE-a Ragweed', '32.4', 'kIUa/ml')
1105	('study_time_collected: 66', 'analyte: IgE-a Amb a', '670.9', 'U/ml')
1106	('study_time_collected: 66', 'analyte: IgG-a Ragweed', '100', 'ng/ml')
1107	('study_time_collected: 73', 'analyte: Free IgE Concentration', '19.712', 'ng/ml')
1108	('study_time_collected: 73', 'analyte: IgE-a Amb a', '1005.5', 'U/ml')
1109	('study_time_collected: 73', 'analyte: IgG-a Amb a', '659.7', 'U/ml')
1110	('study_time_collected: 73', 'analyte: IgE-a Ragweed', '41', 'kIUa/ml')
1111	('study_time_collected: 73', 'analyte: IgG-a Ragweed', '290', 'ng/ml')
1112	
1113	Adverse Reactions
1114	None
1115	