



Marta Ruiz-Bermejo

*A Plausible Prebiotic Hydrocyanic Origin of  
Cofactor Building Blocks & Other Biorganics*

1  
00:00:12,330 --> 00:00:09,199

[Music]

2  
00:00:15,029 --> 00:00:12,340

thank you to the LC comment for the

3  
00:00:19,290 --> 00:00:15,039

media / tunity to present a word about

4  
00:00:22,470 --> 00:00:19,300

johansson I and Johansson I polymer prep

5  
00:00:26,790 --> 00:00:22,480

possible prebiotic precursors of buy

6  
00:00:31,229 --> 00:00:26,800

organic note that our goal is analytical

7  
00:00:35,010 --> 00:00:31,239

and our main interest is to get a better

8  
00:00:38,459 --> 00:00:35,020

understanding of the complex nature or

9  
00:00:41,900 --> 00:00:38,469

the erosion C&I polymers the assistance

10  
00:00:44,940 --> 00:00:41,910

is as important in the finest propagated

11  
00:00:47,880 --> 00:00:44,950

chemistry cosmochemistry are in general

12  
00:00:50,940 --> 00:00:47,890

in astrobiology but also in material

13  
00:00:55,110 --> 00:00:50,950

science as coating materials with

14

00:00:58,819 --> 00:00:55,120

potential biomedical application in this

15

00:01:01,830 --> 00:00:58,829

talk we will see some aspect related to

16

00:01:22,440 --> 00:01:01,840

fasting intake water chemistry of signal

17

00:01:33,099 --> 00:01:30,520

all right the the Dakin CNI is halibut

18

00:01:37,899 --> 00:01:33,109

acuto's molecule in the universe this

19

00:01:40,240 --> 00:01:37,909

molecule is a server in interstellar

20

00:01:42,760 --> 00:01:40,250

clothes starting formation ratio

21

00:01:46,840 --> 00:01:42,770

planetary nebula interplanetary dust

22

00:01:49,809 --> 00:01:46,850

commies matrons any planetary contents

23

00:01:52,179 --> 00:01:49,819

is has been on service in the small

24

00:01:54,249 --> 00:01:52,189

sphere of Titan the largest moon of

25

00:01:59,109 --> 00:01:54,259

Saturn and in there in the gas mixture

26

00:02:04,690 --> 00:01:59,119

on the front a volcanic illusion and in

27

00:02:07,059 --> 00:02:04,700

Ihram albums also johansson i will be

28

00:02:09,969 --> 00:02:07,069

present in the atmosphere of the early

29

00:02:12,729 --> 00:02:09,979

Earth with hydrogen cyanide is the major

30

00:02:14,860 --> 00:02:12,739

product condors a prepaid gas mister our

31

00:02:17,470 --> 00:02:14,870

activates with an ester one and then it

32

00:02:20,860 --> 00:02:17,480

just sources such as alistair discharge

33

00:02:23,890 --> 00:02:20,870

UV radiation or short way on the other

34

00:02:27,430 --> 00:02:23,900

hand abbreviated Raritan is a compound

35

00:02:30,129 --> 00:02:27,440

that is available in adequate

36

00:02:32,500 --> 00:02:30,139

concentration on the primitive editor or

37

00:02:34,420 --> 00:02:32,510

afterward and it can be leased to the

38

00:02:37,059 --> 00:02:34,430

formation on other more complex

39

00:02:38,530 --> 00:02:37,069

molecules by competitively reaction with

40

00:02:41,759 --> 00:02:38,540

the geochemical and your physical

41

00:02:45,370 --> 00:02:41,769

constraints of a particular impediment

42

00:02:48,580 --> 00:02:45,380

therefore do these whole availability

43

00:02:56,729 --> 00:02:48,590

and high reactivity the johansson I can

44

00:03:02,500 --> 00:03:00,009

the Johansson I polymers can be a

45

00:03:05,680 --> 00:03:02,510

spontaneously as tiniest from Johansson

46

00:03:08,530 --> 00:03:05,690

I offers his salute lestine ammonia yen

47

00:03:11,680 --> 00:03:08,540

I or potassium cyanide in the presence

48

00:03:16,150 --> 00:03:11,690

of ammonia or tree a total mine were

49

00:03:19,690 --> 00:03:16,160

working basically reacted in rain from 8

50

00:03:23,289 --> 00:03:19,700

to 10 or in the person of free radical

51  
00:03:26,680 --> 00:03:23,299  
from in unison radiation the spontaneous

52  
00:03:30,369 --> 00:03:26,690  
polymerization can over over wide range

53  
00:03:33,430 --> 00:03:30,379  
of temperature and present in both polar

54  
00:03:37,000 --> 00:03:33,440  
water or not Poland in low carbon sir

55  
00:03:39,160 --> 00:03:37,010  
on surface in addition the synthesis or

56  
00:03:42,520 --> 00:03:39,170  
concern I polymer from formamide

57  
00:03:44,800 --> 00:03:42,530  
and the thermal treatment has also been

58  
00:03:47,440 --> 00:03:44,810  
reported readily the Dawkins and I

59  
00:03:47,830 --> 00:03:47,450  
polymer was synthesized from the tree

60  
00:03:50,170 --> 00:03:47,840  
map

61  
00:03:55,450 --> 00:03:50,180  
I mean a manually trial or from their

62  
00:03:58,150 --> 00:03:55,460  
determine the amino manually try indeed

63  
00:04:00,730 --> 00:03:58,160

it is possible to attain Johansson in a

64

00:04:04,690 --> 00:04:00,740

polymer and the dry condition from the

65

00:04:07,300 --> 00:04:04,700

heating of them therefore the synthesis

66

00:04:09,520 --> 00:04:07,310

of Johansson a polymer is apparently a

67

00:04:12,130 --> 00:04:09,530

robust profit that occur and a

68

00:04:14,230 --> 00:04:12,140

multiplier experimental condition the

69

00:04:17,140 --> 00:04:14,240

Dawkins Eni polymer are a teenager is

70

00:04:23,160 --> 00:04:17,150

running at the beginning Solis sorry

71

00:04:27,880 --> 00:04:23,170

ranging in color from yellow to Allah to

72

00:04:30,910 --> 00:04:27,890

brown to black depending on the degree

73

00:04:33,610 --> 00:04:30,920

of polymerization and cross-linking the

74

00:04:36,640 --> 00:04:33,620

final Pro the final problem produce call

75

00:04:39,070 --> 00:04:36,650

reaction and amorphous black solid

76

00:04:41,890 --> 00:04:39,080

insoluble in water and with very

77

00:04:44,950 --> 00:04:41,900

inspiring solubility in kimono Karnas

78

00:04:47,680 --> 00:04:44,960

servin the johansson i polymer are

79

00:04:49,540 --> 00:04:47,690

suppressing a broad distribution of

80

00:04:52,690 --> 00:04:49,550

molecular weight a highly turn a

81

00:04:55,210 --> 00:04:52,700

structure this characteristic renders

82

00:04:57,550 --> 00:04:55,220

the fullest tutor palatalization of this

83

00:05:00,280 --> 00:04:57,560

macro molecular system particularly

84

00:05:02,470 --> 00:05:00,290

difficult the structure or the johansson

85

00:05:05,050 --> 00:05:02,480

a polymer had not been fully correctly

86

00:05:07,900 --> 00:05:05,060

side i remain controversial due to their

87

00:05:09,700 --> 00:05:07,910

complexity tedious nature in any case

88

00:05:13,510 --> 00:05:09,710

the structure are the nature of the

89

00:05:15,880 --> 00:05:13,520

trojans and polymers depend only on the

90

00:05:18,820 --> 00:05:15,890

spirit of synthetic conditional use for

91

00:05:21,040 --> 00:05:18,830

the production and actually is difficult

92

00:05:23,260 --> 00:05:21,050

to stop it a good comparative

93

00:05:26,200 --> 00:05:23,270

between properties of this complex

94

00:05:29,320 --> 00:05:26,210

substances and experimental condition

95

00:05:31,750 --> 00:05:29,330

use for the synthesis in a particular

96

00:05:34,000 --> 00:05:31,760

sky is two main set aspera mental

97

00:05:37,770 --> 00:05:34,010

condition for the polymerization or the

98

00:05:41,529 --> 00:05:37,780

division i worse Flores the Ferg wants a

99

00:05:44,170 --> 00:05:41,539

static experiment using a pool of liquid

100

00:05:46,160 --> 00:05:44,180

water in this case the synthesis were

101

00:05:48,710 --> 00:05:46,170

carried out without any kind

102

00:05:49,870 --> 00:05:48,720

or steering or experiment about the

103

00:05:53,000 --> 00:05:49,880

drokken tonight polymerization

104

00:05:53,420 --> 00:05:53,010

previously a reporter but may in this

105

00:05:57,260 --> 00:05:53,430

way

106

00:06:00,260 --> 00:05:57,270

and the second one water idle soul

107

00:06:03,020 --> 00:06:00,270

experiment using enough teeth our solar

108

00:06:06,350 --> 00:06:03,030

cycle we explored the role of the

109

00:06:10,040 --> 00:06:06,360

aquaszero soul in this reaction because

110

00:06:13,820 --> 00:06:10,050

the acocella soul have been proposing as

111

00:06:17,960 --> 00:06:13,830

preventive greater a also the ball

112

00:06:21,140 --> 00:06:17,970

banana soul doubles cycle a full be

113

00:06:23,540 --> 00:06:21,150

active in the earthy on a port also

114

00:06:25,820 --> 00:06:23,550

differences interactivity between world

115

00:06:28,090 --> 00:06:25,830

water in any physical state and water

116

00:06:31,610 --> 00:06:28,100

present in air water interface i

117

00:06:33,500 --> 00:06:31,620

respected a small organic molecules tend

118

00:06:36,800 --> 00:06:33,510

to concentrate in their water air

119

00:06:39,800 --> 00:06:36,810

interface and also i suspected an

120

00:06:43,070 --> 00:06:39,810

increase in surface phenomena and there

121

00:06:46,010 --> 00:06:43,080

is a preferential orientation of their

122

00:06:49,550 --> 00:06:46,020

regions in the drop and the surface of

123

00:06:51,980 --> 00:06:49,560

circus aerosol is acidic and finally the

124

00:06:55,310 --> 00:06:51,990

formation of a polymers in no intimate

125

00:06:57,230 --> 00:06:55,320

expressed in area could be favored in

126

00:06:59,420 --> 00:06:57,240

the last year there is a gradual reset

127

00:07:01,670 --> 00:06:59,430

in reactant seed with your region of fly

128

00:07:05,480 --> 00:07:01,680

and the water interface and the world

129

00:07:10,720 --> 00:07:05,490

poor tech by viola Donelson took our dog

130

00:07:15,680 --> 00:07:13,280

back to the issue of the complex nature

131

00:07:20,300 --> 00:07:15,690

of the drokken C&I polymer in this

132

00:07:22,250 --> 00:07:20,310

picture a hubs assume the more recent

133

00:07:24,860 --> 00:07:22,260

model to try to explain the structure of

134

00:07:27,400 --> 00:07:24,870

the drug in Chennai polymer here the

135

00:07:31,840 --> 00:07:27,410

mother professor by a

136

00:07:36,530 --> 00:07:31,850

Monahan of an earth del L meaner and

137

00:07:38,960 --> 00:07:36,540

Matthews and also bias are represented

138

00:07:41,330 --> 00:07:38,970

however independently or desert

139

00:07:43,520 --> 00:07:41,340

structure of the druggist ni polymer is

140

00:07:46,250 --> 00:07:43,530

well note that important beyond monomer

141

00:07:50,180 --> 00:07:46,260

of the other organic deliver when the

142

00:07:55,100 --> 00:07:50,190

polymer of Johansson I had our it

143

00:07:58,280 --> 00:07:55,110

releases thus numerous studies carried

144

00:07:59,930 --> 00:07:58,290

out over the last 50 years to definite

145

00:08:03,020 --> 00:07:59,940

the molecular present indeed

146

00:08:06,590 --> 00:08:03,030

concern I polymer in this area I've not

147

00:08:09,080 --> 00:08:06,600

able de Bourgh caramel Pythagoras was

148

00:08:12,110 --> 00:08:09,090

very organelle or dough Miller

149

00:08:14,000 --> 00:08:12,120

Minar Matthews a anagram Manasa

150

00:08:17,000 --> 00:08:14,010

whoever's are in the case of the strata

151  
00:08:19,520 --> 00:08:17,010  
audio Hanson I polymers comparing the

152  
00:08:20,990 --> 00:08:19,530  
structure the product sorry the product

153  
00:08:23,150 --> 00:08:21,000  
of tiny and the different reaction

154  
00:08:25,610 --> 00:08:23,160  
condition or different analytical

155  
00:08:28,370 --> 00:08:25,620  
processor is difficult in other words

156  
00:08:30,530 --> 00:08:28,380  
they are gonna detected in the dimension

157  
00:08:32,659 --> 00:08:30,540  
a polymer depended early on the

158  
00:08:36,740 --> 00:08:32,669  
experimental condition of polymerization

159  
00:08:39,230 --> 00:08:36,750  
of the intro Hanson I radians

160  
00:08:42,110 --> 00:08:39,240  
temperature concentration in detail pas

161  
00:08:44,450 --> 00:08:42,120  
answered but also the hydrolysis

162  
00:08:46,700 --> 00:08:44,460  
condition at the analytical techniques

163  
00:08:50,600 --> 00:08:46,710

used for the identification on the

164

00:08:54,100 --> 00:08:50,610

compounds Disney and s else PLC or other

165

00:08:57,290 --> 00:08:54,110

spectroscopic techniques here we can see

166

00:09:01,070 --> 00:08:57,300

summary or the divers Organa does can be

167

00:09:04,700 --> 00:09:01,080

identified Millikan CNI polymers until

168

00:09:07,160 --> 00:09:04,710

2030 in either concern I polymer have

169

00:09:12,140 --> 00:09:07,170

been identified important be organic

170

00:09:16,120 --> 00:09:12,150

such as amino acids a TerraCycle contain

171

00:09:17,240 --> 00:09:16,130

and nitrogen such as Iran teens puddings

172

00:09:22,760 --> 00:09:17,250

imidazoles

173

00:09:26,690 --> 00:09:22,770

and perience more recently carbocyclic

174

00:09:34,210 --> 00:09:26,700

acid implicates in the air TCA cycle and

175

00:09:38,360 --> 00:09:36,920

the studied in was found and the

176

00:09:41,240 --> 00:09:38,370

particular

177

00:09:44,600 --> 00:09:41,250

syntactic synthetic and analysis

178

00:09:51,860 --> 00:09:44,610

condition are using GC NS as techniques

179

00:09:54,620 --> 00:09:51,870

identified the hydrolysis condition was

180

00:09:58,250 --> 00:09:54,630

chosen because this condition are

181

00:10:02,000 --> 00:09:58,260

typical in periodic chemistry side there

182

00:10:05,300 --> 00:10:02,010

first pyramids of Miller and Otto and

183

00:10:12,430 --> 00:10:05,310

this condition are usually used in the

184

00:10:13,610 --> 00:10:12,440

hydrolysis known proteins Mysterium was

185

00:10:18,470 --> 00:10:13,620

fired

186

00:10:22,550 --> 00:10:18,480

identify by us or ocean Oh data balanced

187

00:10:26,630 --> 00:10:22,560

by C master spectra miss pro/5 and

188

00:10:29,210 --> 00:10:26,640

future by an external standard who sees

189

00:10:33,710 --> 00:10:29,220

this data racy master spectra all in

190

00:10:36,140 --> 00:10:33,720

this tyranny will be identified before

191

00:10:38,510 --> 00:10:36,150

continuing with the Restless of God we

192

00:10:41,480 --> 00:10:38,520

are going to see why dirty readings are

193

00:10:45,950 --> 00:10:41,490

the previous synthesis I important

194

00:10:48,680 --> 00:10:45,960

there are trimming class or austere

195

00:10:52,310 --> 00:10:48,690

Innen of natural tea readings

196

00:10:56,329 --> 00:10:52,320

Mnemosyne is Alex a team and in Chile

197

00:10:58,850 --> 00:10:56,339

Dean during the divot ice has a variety

198

00:11:01,720 --> 00:10:58,860

of important biological rolled up in man

199

00:11:03,160 --> 00:11:01,730

one convert toughen caliber and reduce

200

00:11:07,640 --> 00:11:03,170

cofactor

201  
00:11:10,130 --> 00:11:07,650  
despite sex bangs essential for modern

202  
00:11:12,290 --> 00:11:10,140  
metabolic Bagwell little attentions had

203  
00:11:15,110 --> 00:11:12,300  
been given to the role as coenzyme

204  
00:11:17,420 --> 00:11:15,120  
players in the earlier multiple studios

205  
00:11:19,970 --> 00:11:17,430  
assist on the yo chemical the condition

206  
00:11:22,400 --> 00:11:19,980  
that after trust metal availability and

207  
00:11:25,010 --> 00:11:22,410  
the response is organized in utilization

208  
00:11:28,040 --> 00:11:25,020  
trans metal base it on their

209  
00:11:30,410 --> 00:11:28,050  
availability a similar set of study is

210  
00:11:32,930 --> 00:11:30,420  
lacking for consign and these are

211  
00:11:38,060 --> 00:11:32,940  
particularly a scar when discussing the

212  
00:11:40,760 --> 00:11:38,070  
production's austere earrings so I only

213  
00:11:43,720 --> 00:11:40,770

call fancy a sample of about the

214

00:11:46,820 --> 00:11:43,730

prebiotic synthesis of tea reading

215

00:11:50,180 --> 00:11:46,830

generation austerities and Flavio like

216

00:11:52,790 --> 00:11:50,190

compounds from on dry fitting of amino

217

00:11:56,570 --> 00:11:52,800

acid and during difficulty on a

218

00:11:58,610 --> 00:11:56,580

structure like tiddling by DT NS

219

00:12:01,579 --> 00:11:58,620

analysis at the thermal analysis of

220

00:12:04,610 --> 00:12:01,589

arrogance ionize polymer therefore or

221

00:12:07,400 --> 00:12:04,620

film it of Attilan in a johansson a

222

00:12:10,640 --> 00:12:07,410

polymer was really promising added upon

223

00:12:14,329 --> 00:12:10,650

of view of previous chemistry and also

224

00:12:17,210 --> 00:12:14,339

or finding of appearing in any direction

225

00:12:19,540 --> 00:12:17,220

i polymer was in agreement agreement

226

00:12:20,720 --> 00:12:19,550

with the proposal made by a similar

227

00:12:24,440 --> 00:12:20,730

elemental

228

00:12:25,930 --> 00:12:24,450

several years ago this austere circuits

229

00:12:27,380 --> 00:12:25,940

iris on it

230

00:12:31,160 --> 00:12:27,390

origin of

231

00:12:34,400 --> 00:12:31,170

a factor Sonics folic acid and iron grip

232

00:12:37,370 --> 00:12:34,410

of Levine bus compounds are tearing in

233

00:12:39,470 --> 00:12:37,380

the river ties methanol hypothesis is

234

00:12:41,120 --> 00:12:39,480

the centrality in derivatives come

235

00:12:44,240 --> 00:12:41,130

before from in your hand

236

00:12:46,400 --> 00:12:44,250

Gianna thus or previous result together

237

00:12:46,880 --> 00:12:46,410

could be partisan suggested by the same

238

00:12:49,460 --> 00:12:46,890

order

239

00:12:52,280 --> 00:12:49,470

I love and tell encourage to Korea to

240

00:12:54,950 --> 00:12:52,290

analysis in deep several Johansson I

241

00:12:59,630 --> 00:12:54,960

polymer synthesis and analysis under

242

00:13:02,390 --> 00:12:59,640

different condition so a little careful

243

00:13:06,050 --> 00:13:02,400

analysis of the second chromatogram so

244

00:13:08,450 --> 00:13:06,060

about inserting for the molecular onion

245

00:13:10,760 --> 00:13:08,460

or several tremendously that ever the

246

00:13:16,610 --> 00:13:10,770

diva types of training leads to the

247

00:13:19,640 --> 00:13:16,620

detection of the oxy pyridine bass also

248

00:13:23,680 --> 00:13:19,650

to ascertain tyrion tyrion leukotriene

249

00:13:27,320 --> 00:13:23,690

no methane and tetrahedral see pyridine

250

00:13:29,960 --> 00:13:27,330

in addition we see dentist synthesized

251  
00:13:32,390 --> 00:13:29,970  
another Johansson high polymer but the

252  
00:13:37,180 --> 00:13:32,400  
reaction was conducive in the absence of

253  
00:13:41,420 --> 00:13:37,190  
oxygen using a nitrogen atmosphere

254  
00:13:44,660 --> 00:13:41,430  
experiment a in this scale in solid

255  
00:13:46,910 --> 00:13:44,670  
polymer was a relative under the state's

256  
00:13:49,070 --> 00:13:46,920  
patent condition condition discrete

257  
00:13:50,840 --> 00:13:49,080  
about and similar result where the

258  
00:13:55,280 --> 00:13:50,850  
trainees with respect to the control

259  
00:13:57,380 --> 00:13:55,290  
experiment you can see here we also

260  
00:13:59,330 --> 00:13:57,390  
associate the production of Tyrion in

261  
00:14:06,140 --> 00:13:59,340  
the presence of echoes aerosols

262  
00:14:10,190 --> 00:14:06,150  
experiment B and C in this table you can

263  
00:14:13,820 --> 00:14:10,200

see that that the girls were protect

264

00:14:17,510 --> 00:14:13,830

LEDs from experiment B and C are lower

265

00:14:19,850 --> 00:14:17,520

compared with a static a spam because

266

00:14:23,690 --> 00:14:19,860

Aquos aerosol do not favor the

267

00:14:27,260 --> 00:14:23,700

production of insulin at the same a

268

00:14:29,860 --> 00:14:27,270

polymer however the ratio between the

269

00:14:33,020 --> 00:14:29,870

girls experience and puddings

270

00:14:35,390 --> 00:14:33,030

is greater for the aerosol experiment

271

00:14:37,820 --> 00:14:35,400

does the Archos aerosol increase the

272

00:14:41,199 --> 00:14:37,830

relative percent amount of T leading

273

00:14:46,150 --> 00:14:44,559

I comment before the guillotine for

274

00:14:49,359 --> 00:14:46,160

monuments in the decides from the

275

00:14:52,239 --> 00:14:49,369

polymerization arsenide depending on the

276

00:14:54,340 --> 00:14:52,249

hydrolysis condition of the sample thank

277

00:14:58,030 --> 00:14:54,350

taking this to account and

278

00:15:01,319 --> 00:14:58,040

considering that this tree doctrine

279

00:15:05,530 --> 00:15:01,329

could be Athenian for the Hadean of

280

00:15:10,299 --> 00:15:05,540

acetylene in the presence of chloride

281

00:15:12,369 --> 00:15:10,309

acid we are eternally studied the effort

282

00:15:15,790 --> 00:15:12,379

at or others it releases collision over

283

00:15:18,970 --> 00:15:15,800

tear in Astana thus we check the effect

284

00:15:22,749 --> 00:15:18,980

or the other catalysis condition on Y so

285

00:15:26,679 --> 00:15:22,759

subtotal as his Asami Sato tyrion tyrion

286

00:15:30,579 --> 00:15:26,689

a la catrina we found that is absurd

287

00:15:34,509 --> 00:15:30,589

Potanin is almost converted to be rocks

288

00:15:39,819 --> 00:15:34,519

appear in the torturing is totally does

289

00:15:40,929 --> 00:15:39,829

confused pyridine is actually dominated

290

00:15:44,139 --> 00:15:40,939

and gills

291

00:15:46,960 --> 00:15:44,149

loomis I'm a your copter in his patella

292

00:15:49,449 --> 00:15:46,970

discomposed to giant tetra rocks appear

293

00:15:54,009 --> 00:15:49,459

in and something on other an

294

00:15:56,859 --> 00:15:54,019

identification pounds vodka that

295

00:16:01,449 --> 00:15:56,869

co-worker studied the hydrolysis of

296

00:16:04,749 --> 00:16:01,459

hydrogen cyanide polymer at pH 8 with

297

00:16:06,879 --> 00:16:04,759

maybe more a model of resonable model of

298

00:16:09,639 --> 00:16:06,889

pre materiality any condition all

299

00:16:12,460 --> 00:16:09,649

throughout the ionic FPS of the earliest

300

00:16:15,220 --> 00:16:12,470

remains controversial issue some outer

301

00:16:16,539 --> 00:16:15,230

provide arguments or for a relative

302

00:16:18,519 --> 00:16:16,549

constancy SPS

303

00:16:21,129 --> 00:16:18,529

the asean EPX or the modern earth

304

00:16:24,929 --> 00:16:21,139

approximately eight

305

00:16:27,699 --> 00:16:24,939

thus the insoluble attorney sorry

306

00:16:35,169 --> 00:16:27,709

johansson i polymer attained from the

307

00:16:38,679 --> 00:16:35,179

experiment was it releases using the

308

00:16:47,549 --> 00:16:38,689

hydrolysis condition described by

309

00:16:50,619 --> 00:16:47,559

Bourget and co-worker in this sky

310

00:16:53,710 --> 00:16:50,629

pyridine is subsistence after turin and

311

00:16:54,530 --> 00:16:53,720

leukotriene were detected in relatively

312

00:16:57,380 --> 00:16:54,540

high

313

00:17:00,230 --> 00:16:57,390

day non-silicon produce llama signs

314

00:17:02,120 --> 00:17:00,240

agüero service therefore the formation

315

00:17:04,490 --> 00:17:02,130

of dhamma sign is a dearest consequence

316

00:17:08,500 --> 00:17:04,500

of the oscillation of Tiran due to the

317

00:17:12,110 --> 00:17:08,510

obvious hydrolysis condition news

318

00:17:17,120 --> 00:17:12,120

however when the supernatant from the

319

00:17:20,090 --> 00:17:17,130

experiment see a grass seed release I

320

00:17:24,310 --> 00:17:20,100

release Isis using neutral in the

321

00:17:27,590 --> 00:17:24,320

condition we compounds were identified

322

00:17:32,780 --> 00:17:27,600

nullity reading were all said that was

323

00:17:35,900 --> 00:17:32,790

also tree Essenes and fatty attic the

324

00:17:38,450 --> 00:17:35,910

presence of Priya seen in HSN in Arakan

325

00:17:40,610 --> 00:17:38,460

C&I polymers in this interesting because

326

00:17:43,490 --> 00:17:40,620

opens a new route for the periodic

327

00:17:46,100 --> 00:17:43,500

synthesis beyond of the pathway discrete

328

00:17:49,100 --> 00:17:46,110

by our groups using areas privileged

329

00:17:51,080 --> 00:17:49,110

area under the probability point of view

330

00:17:54,220 --> 00:17:51,090

tree attained are interesting because

331

00:17:58,090 --> 00:17:54,230

the havean suggested an alternative

332

00:18:00,740 --> 00:17:58,100

classes in the Prairie a war

333

00:18:02,480 --> 00:18:00,750

later I will comment the formation

334

00:18:06,380 --> 00:18:02,490

appraisal of fatty acid Amira Hass

335

00:18:08,990 --> 00:18:06,390

ionized polymer in any case here we have

336

00:18:11,510 --> 00:18:09,000

a clear example that indentification of

337

00:18:14,810 --> 00:18:11,520

by organic compounds in illusionary

338

00:18:17,030 --> 00:18:14,820

polymer is sensitive both the synthetic

339

00:18:19,610 --> 00:18:17,040

condition for the production of polymer

340

00:18:22,430 --> 00:18:19,620

and hydrolysis condition and also that

341

00:18:24,230 --> 00:18:22,440

the Elco solution have agreed influence

342

00:18:29,680 --> 00:18:24,240

in the instrument cyanide polymerization

343

00:18:32,180 --> 00:18:29,690

as it was suspected in this picture

344

00:18:34,670 --> 00:18:32,190

hypothetical pathway as formation of

345

00:18:37,520 --> 00:18:34,680

tyranny in front and Eni polymerization

346

00:18:41,030 --> 00:18:37,530

is so busted under Gabriel is a

347

00:18:45,460 --> 00:18:41,040

conditions condensation the for fight

348

00:18:52,910 --> 00:18:45,470

jimena pyrimidine undergo cyclo addition

349

00:18:58,210 --> 00:18:52,920

with one to the carbonyl compounds to 4d

350

00:19:02,980 --> 00:19:00,399

as Canada conclusion about the

351  
00:19:06,070 --> 00:19:02,990  
identification of tyranny major concern

352  
00:19:08,080 --> 00:19:06,080  
a polymer we can say that it is cannot

353  
00:19:09,909 --> 00:19:08,090  
be considered as molecular fossils

354  
00:19:11,919 --> 00:19:09,919  
because their backbone can be

355  
00:19:17,140 --> 00:19:11,929  
synthesized and the possible provided

356  
00:19:19,180 --> 00:19:17,150  
condition in the second part of this

357  
00:19:21,789 --> 00:19:19,190  
talk I would like to address an aspir

358  
00:19:25,029 --> 00:19:21,799  
related to their scenario of glassy

359  
00:19:26,830 --> 00:19:25,039  
Liddell proposes but assume or and resin

360  
00:19:30,580 --> 00:19:26,840  
result in this topic use it across

361  
00:19:33,909 --> 00:19:30,590  
Arizona in the glissade let s scenario

362  
00:19:36,820 --> 00:19:33,919  
leglocks la regla silane and therefore

363  
00:19:38,919 --> 00:19:36,830

mal de mer did receive former eight are

364

00:19:42,250 --> 00:19:38,929

suggested to be the central starting

365

00:19:44,860 --> 00:19:42,260

material for a chemical constitution was

366

00:19:47,289 --> 00:19:44,870

a possible promoter metabolics serving

367

00:19:49,600 --> 00:19:47,299

as a starter rata for the most formation

368

00:19:51,520 --> 00:19:49,610

of other organic compounds with

369

00:19:57,669 --> 00:19:51,530

biological interest

370

00:20:01,000 --> 00:19:57,679

Sagat silver and red TC a carboxylic

371

00:20:02,980 --> 00:20:01,010

acid by reaction Dimmick to the

372

00:20:06,760 --> 00:20:02,990

competitively with the constraints

373

00:20:09,039 --> 00:20:06,770

probabilities chemistry the world made

374

00:20:11,350 --> 00:20:09,049

by krishna multi group are the earliest

375

00:20:13,810 --> 00:20:11,360

sample I could find about this

376

00:20:19,930 --> 00:20:13,820

parametric envisioned for the proposal

377

00:20:22,750 --> 00:20:19,940

of assimilation in the Gosselin scenario

378

00:20:25,390 --> 00:20:22,760

they a stem compounds Ysidro healthy ni

379

00:20:27,760 --> 00:20:25,400

so we explore in an experimental as

380

00:20:30,159 --> 00:20:27,770

proud to check the Glacial a scenario of

381

00:20:32,680 --> 00:20:30,169

several synthesis ysidro Hanson I

382

00:20:35,200 --> 00:20:32,690

polymer but in particular attention to

383

00:20:38,230 --> 00:20:35,210

the role of the echoes are sewn together

384

00:20:41,890 --> 00:20:38,240

with a statistical method for this study

385

00:20:46,149 --> 00:20:41,900

a total a total of 32 experimental

386

00:20:49,930 --> 00:20:46,159

condition was plural they start in real

387

00:20:53,110 --> 00:20:49,940

time the reaction time the presence of

388

00:20:56,289 --> 00:20:53,120

aqua cytosol the present of Sal an odd

389

00:21:01,029 --> 00:20:56,299

seen were evaluated for the platoon of

390

00:21:03,789 --> 00:21:01,039

pure organic compounds here we can see

391

00:21:08,110 --> 00:21:03,799

the polar Ocone compounds identify in

392

00:21:12,060 --> 00:21:08,120

this new a token CNI polymers by GC and

393

00:21:15,540 --> 00:21:12,070

EPS all the polar organic compounds way

394

00:21:17,940 --> 00:21:15,550

were identified after high acid

395

00:21:20,220 --> 00:21:17,950

hydrolysis of the sample are using the

396

00:21:23,510 --> 00:21:20,230

devastation method may be on a boat

397

00:21:27,630 --> 00:21:23,520

in this world not only the insoluble

398

00:21:31,590 --> 00:21:27,640

Johansson a polymer were analysis but

399

00:21:34,350 --> 00:21:31,600

also the supernatant well study not at

400

00:21:37,560 --> 00:21:34,360

all compounds were found in a sample as

401  
00:21:39,960 --> 00:21:37,570  
is buses pass still their prevalence and

402  
00:21:45,030 --> 00:21:39,970  
he was depend on the experimental

403  
00:21:46,860 --> 00:21:45,040  
condition of synthesis at the tile

404  
00:21:48,750 --> 00:21:46,870  
analysis of the GC and else

405  
00:21:52,220 --> 00:21:48,760  
chromatograms and the synthetic

406  
00:21:54,930 --> 00:21:52,230  
conditions together with a dancer called

407  
00:21:57,360 --> 00:21:54,940  
redundancy correspondence analysis 2d

408  
00:22:00,120 --> 00:21:57,370  
confirm that the present of Aquos

409  
00:22:02,610 --> 00:22:00,130  
aerosol intense notably the diversity of

410  
00:22:05,300 --> 00:22:02,620  
agony found in addition cyanide polymers

411  
00:22:08,730 --> 00:22:05,310  
independently or the other experimental

412  
00:22:11,250 --> 00:22:08,740  
condition in the particular case a degli

413  
00:22:13,830 --> 00:22:11,260

oxalic acid this compound was

414

00:22:16,680 --> 00:22:13,840

preferentially identified in solution

415

00:22:18,390 --> 00:22:16,690

Johansson I polymers in that is sizing

416

00:22:20,940 --> 00:22:18,400

the presence of Aquos aerosol and

417

00:22:27,180 --> 00:22:20,950

ammonia under an inert atmosphere and

418

00:22:29,700 --> 00:22:27,190

using pure water as a more proposed the

419

00:22:33,770 --> 00:22:29,710

isolate a scenario suggests in a

420

00:22:37,410 --> 00:22:33,780

hypothetical relationship between a

421

00:22:41,640 --> 00:22:37,420

erosion C&I and the constituent was the

422

00:22:44,970 --> 00:22:41,650

para TCA cycle here so what in boxes in

423

00:22:48,950 --> 00:22:44,980

this proposal they did receive

424

00:22:53,610 --> 00:22:48,960

fumari will be formatted releases of

425

00:22:55,470 --> 00:22:53,620

them in this war you know the docks

426

00:22:59,160 --> 00:22:55,480

infirmary at it was hidden difficult

427

00:23:02,520 --> 00:22:59,170

however public ethic and allene aspartic

428

00:23:05,790 --> 00:23:02,530

acid glutamic acid and also glia silly

429

00:23:08,220 --> 00:23:05,800

happy where identify but you see a nest

430

00:23:10,950 --> 00:23:08,230

in good agreement with this emotional

431

00:23:13,680 --> 00:23:10,960

proportion the formation of the amino

432

00:23:17,010 --> 00:23:13,690

acid will be explaining as a reductive

433

00:23:19,290 --> 00:23:17,020

amination process assets it was

434

00:23:20,880 --> 00:23:19,300

suggested by the same morsel taken into

435

00:23:23,340 --> 00:23:20,890

account is part of the visual aid

436

00:23:25,890 --> 00:23:23,350

scenario in general the identification

437

00:23:28,590 --> 00:23:25,900

OD Glee oxalic acid the

438

00:23:30,900 --> 00:23:28,600

some constituent of the electoral cycle

439

00:23:33,900 --> 00:23:30,910

and the respective amino acid will be

440

00:23:37,170 --> 00:23:33,910

favored by the present of across Arizona

441

00:23:40,560 --> 00:23:37,180

the compounds identify as some in the

442

00:23:44,630 --> 00:23:40,570

system where the data simultaneously in

443

00:23:51,980 --> 00:23:44,640

the iteration CNI polymer synthesis I

444

00:23:55,770 --> 00:23:51,990

under this particular condition in this

445

00:24:01,380 --> 00:23:55,780

in this system of the earth TCA cycle as

446

00:24:04,920 --> 00:24:01,390

shown in boxes the compounds found in

447

00:24:08,340 --> 00:24:04,930

your world now however note that only

448

00:24:11,580 --> 00:24:08,350

see two series five carboxylic acid well

449

00:24:14,880 --> 00:24:11,590

identify and the autocatalytic strata or

450

00:24:19,050 --> 00:24:14,890

the TCA cycle the river for the branch

451  
00:24:21,860 --> 00:24:19,060  
it pointed associated with Secretariat

452  
00:24:25,710 --> 00:24:21,870  
currently we are working to identify

453  
00:24:28,710 --> 00:24:25,720  
specifically keto acid and this is the

454  
00:24:34,740 --> 00:24:28,720  
basilic acid Milligan C&I polymer and

455  
00:24:37,440 --> 00:24:34,750  
also a selective reaction this has come

456  
00:24:40,020 --> 00:24:37,450  
so hypothetical relationship between the

457  
00:24:45,210 --> 00:24:40,030  
carboxylic acid even difficult when GC

458  
00:24:47,670 --> 00:24:45,220  
and s in or you can see ni polymer the

459  
00:24:51,600 --> 00:24:47,680  
starting point is the propulsion male by

460  
00:24:53,550 --> 00:24:51,610  
a similar in blue arrow to establish a

461  
00:24:56,400 --> 00:24:53,560  
hypothetical relationship between the

462  
00:24:57,840 --> 00:24:56,410  
carboxylic acid identify identify by

463  
00:24:59,550 --> 00:24:57,850

eyes the mirror

464

00:25:01,260 --> 00:24:59,560

reaction proposed for the

465

00:25:03,750 --> 00:25:01,270

interconnection between the different

466

00:25:05,730 --> 00:25:03,760

carboxylic acid as react is curve

467

00:25:06,570 --> 00:25:05,740

oscillation oscillation carbonyl

468

00:25:12,270 --> 00:25:06,580

reduction

469

00:25:16,530 --> 00:25:12,280

or seeded type the curve oscillation and

470

00:25:19,410 --> 00:25:16,540

radical oxidation the production of the

471

00:25:22,140 --> 00:25:19,420

carboxylic acids is to improve in the

472

00:25:25,650 --> 00:25:22,150

presence of aqua sorry soul the rest'll

473

00:25:28,080 --> 00:25:25,660

is in agreement with our previous world

474

00:25:31,230 --> 00:25:28,090

in with the formation of carboxylic acid

475

00:25:33,660 --> 00:25:31,240

was always favored in the presence of

476

00:25:36,890 --> 00:25:33,670

aqua solution and also with the result

477

00:25:39,890 --> 00:25:36,900

reporter but Donna's Al Ahram co-worker

478

00:25:43,880 --> 00:25:39,900

in Sun except or the proposal of this

479

00:25:53,780 --> 00:25:43,890

Stan are implicit in the doxy Intersil

480

00:25:56,600 --> 00:25:53,790

radicals with our province e for the air

481

00:25:58,760 --> 00:25:56,610

water interface does manifest in the

482

00:26:01,000 --> 00:25:58,770

partition of the drusilla radical

483

00:26:03,950 --> 00:26:01,010

between the world water and the surface

484

00:26:06,560 --> 00:26:03,960

likely due to this fat we are serve at

485

00:26:09,770 --> 00:26:06,570

greater diversity in carboxylic acid in

486

00:26:13,270 --> 00:26:09,780

those johansson I polymers in the decide

487

00:26:17,690 --> 00:26:13,280

using across Arizona on the other harm

488

00:26:20,570 --> 00:26:17,700

the synthesis of Eden twins can also be

489

00:26:23,390 --> 00:26:20,580

explained using the do silly of it as a

490

00:26:25,870 --> 00:26:23,400

starting riittää again the role of the

491

00:26:28,760 --> 00:26:25,880

Aqua sorry soul is key for the dentist's

492

00:26:32,570 --> 00:26:28,770

identification of Atlanta wins the

493

00:26:34,580 --> 00:26:32,580

election I attic was all identified in

494

00:26:38,720 --> 00:26:34,590

erosion cyanide polymers in the decides

495

00:26:43,340 --> 00:26:38,730

in the present of across Arizona yet the

496

00:26:46,610 --> 00:26:43,350

Inka hydroxy in and fi e da see in an

497

00:26:48,890 --> 00:26:46,620

chain was preferentially identified in

498

00:26:52,280 --> 00:26:48,900

Iran cyanide polymers in 30 sized under

499

00:26:54,410 --> 00:26:52,290

this does condition the danton's are

500

00:26:56,720 --> 00:26:54,420

periodically interesting because they

501  
00:26:59,810 --> 00:26:56,730  
had been suggesting as a precursor for

502  
00:27:01,400 --> 00:26:59,820  
the emergence of petals and amino acids

503  
00:27:04,250 --> 00:27:01,410  
and because the primitive in a

504  
00:27:06,950 --> 00:27:04,260  
micrograph of there may have been able

505  
00:27:13,280 --> 00:27:06,960  
to use Indian teens as sources of

506  
00:27:15,200 --> 00:27:13,290  
nitrogen and carbon finally the glossy

507  
00:27:17,600 --> 00:27:15,210  
like a scenario also suggested the

508  
00:27:19,460 --> 00:27:17,610  
synthesis of sugar from deadly oxalic

509  
00:27:22,310 --> 00:27:19,470  
acid and is joseph merrick

510  
00:27:24,260 --> 00:27:22,320  
RT is namoore tea and co-workers so with

511  
00:27:29,480 --> 00:27:24,270  
the production of sugar from the

512  
00:27:32,210 --> 00:27:29,490  
dramatic artist is favored at PS that is

513  
00:27:34,370 --> 00:27:32,220

like alkaline and a result that indicate

514

00:27:36,860 --> 00:27:34,380

that the present across aerosol have a

515

00:27:38,990 --> 00:27:36,870

negative correlation with the fennel PS

516

00:27:41,360 --> 00:27:39,000

or destiny the polymerization reaction

517

00:27:42,110 --> 00:27:41,370

from the starting point we have

518

00:27:45,140 --> 00:27:42,120

synthetized

519

00:27:48,290 --> 00:27:45,150

unused serie of hydrogen cyanide polymer

520

00:27:51,410 --> 00:27:48,300

using across other soil using a

521

00:27:53,520 --> 00:27:51,420

different reaction time from one day to

522

00:27:57,550 --> 00:27:53,530

30 the

523

00:28:01,480 --> 00:27:57,560

in this new experiment the crew reaction

524

00:28:04,150 --> 00:28:01,490

were analysis by Silla know that in

525

00:28:07,780 --> 00:28:04,160

these new analysis with change the

526

00:28:10,510 --> 00:28:07,790

assets it releases condition and the

527

00:28:14,200 --> 00:28:10,520

river delivered citation method this

528

00:28:18,640 --> 00:28:14,210

chromatogram is some as an example of

529

00:28:21,010 --> 00:28:18,650

natural result you see these new

530

00:28:23,860 --> 00:28:21,020

analytical protocol for the workup of

531

00:28:28,230 --> 00:28:23,870

the sample not only Sousou are worth

532

00:28:32,140 --> 00:28:28,240

detected but also both fatty acid and

533

00:28:33,940 --> 00:28:32,150

Manali Lisa died were identified also

534

00:28:37,030 --> 00:28:33,950

the prebiotic production of fatty

535

00:28:40,030 --> 00:28:37,040

artists formalize the ID related produce

536

00:28:43,870 --> 00:28:40,040

of johansson ID has been recently

537

00:28:46,500 --> 00:28:43,880

reported by the group of salary no tour

538

00:28:49,390 --> 00:28:46,510

no lease is the first time that

539

00:28:51,880 --> 00:28:49,400

monoglyceride are found in this time in

540

00:28:56,110 --> 00:28:51,890

this type of synthesis i will lie to

541

00:29:02,710 --> 00:28:56,120

pointing out that the result so here our

542

00:29:05,350 --> 00:29:02,720

preliminary also highly hopefully as a

543

00:29:07,990 --> 00:29:05,360

result also Retton synthetic analytical

544

00:29:11,910 --> 00:29:08,000

work a notable number on you important

545

00:29:15,610 --> 00:29:11,920

be organic compound such as amino acid

546

00:29:18,910 --> 00:29:15,620

is oxy attic keto acid the carboxylic

547

00:29:21,460 --> 00:29:18,920

acid fatty acid contains three Essenes

548

00:29:22,990 --> 00:29:21,470

butenes to redeem sewer and

549

00:29:25,450 --> 00:29:23,000

monoglycerides

550

00:29:30,550 --> 00:29:25,460

has been found for the first time in

551  
00:29:33,430 --> 00:29:30,560  
addition cyanide polymers as a general

552  
00:29:35,770 --> 00:29:33,440  
conclusion or finding together with the

553  
00:29:37,780 --> 00:29:35,780  
previous detection of other important

554  
00:29:40,600 --> 00:29:37,790  
bill Rani's indicate that the drokken

555  
00:29:43,420 --> 00:29:40,610  
sin i may be a key compound in the first

556  
00:29:48,330 --> 00:29:43,430  
step of the primal evolution or the

557  
00:29:52,690 --> 00:29:51,970  
finally I would like to thank our God

558  
00:29:54,640 --> 00:29:52,700  
Cristina

559  
00:29:57,460 --> 00:29:54,650  
Patricia for the fighting war in the

560  
00:30:01,120 --> 00:29:57,470  
synthesis Halden analysis of the rockin

561  
00:30:04,210 --> 00:30:01,130  
C&I polymer Elena wants electoral for

562  
00:30:06,790 --> 00:30:04,220  
her collaboration in the static

563  
00:30:09,330 --> 00:30:06,800

stiffness study it's all thank you very

564

00:30:17,280 --> 00:30:09,340

much for your attention

565

00:30:20,380 --> 00:30:18,460

okay

566

00:30:22,480 --> 00:30:20,390

Thank You Marta that was a great talk um

567

00:30:26,470 --> 00:30:22,490

we've got about 15 minutes now for

568

00:30:35,200 --> 00:30:26,480

questions so okay I have arenas here and

569

00:30:37,570 --> 00:30:35,210

shut up cut it good well thank you for

570

00:30:40,390 --> 00:30:37,580

this talk and just a lot of us know

571

00:30:42,880 --> 00:30:40,400

firsthand how important and how

572

00:30:45,820 --> 00:30:42,890

difficult this research into a hydrogen

573

00:30:49,150 --> 00:30:45,830

cyanide polymers is so congratulation on

574

00:30:50,800 --> 00:30:49,160

all your wonderful work so my question

575

00:30:54,070 --> 00:30:50,810

has to do with Tara Dean's

576

00:30:56,680 --> 00:30:54,080

so like if I'm just correct me if I'm

577

00:30:58,900 --> 00:30:56,690

wrong but most of your systems you will

578

00:31:02,260 --> 00:30:58,910

prepare your HC and Paula merral first

579

00:31:05,110 --> 00:31:02,270

and recover the batarians upon

580

00:31:07,840 --> 00:31:05,120

hydrolysis and you have a mechanism but

581

00:31:10,780 --> 00:31:07,850

I mean it it's at this point it's

582

00:31:13,180 --> 00:31:10,790

unclear whether you may make Tara Dean's

583

00:31:15,460 --> 00:31:13,190

first and then they get fused into

584

00:31:17,950 --> 00:31:15,470

polymer or maybe you're making them upon

585

00:31:20,830 --> 00:31:17,960

hydrolysis and I know it's just an open

586

00:31:23,590 --> 00:31:20,840

question right but can you speculate

587

00:31:26,890 --> 00:31:23,600

about some sort of conditions where you

588

00:31:30,250 --> 00:31:26,900

would stop polymerization air just Tara

589

00:31:32,050 --> 00:31:30,260

Dean's and not and not expensive this

590

00:31:34,060 --> 00:31:32,060

long polymer and they're just open

591

00:31:41,380 --> 00:31:34,070

question of course but maybe just you

592

00:31:45,570 --> 00:31:41,390

have some insight into this but I don't

593

00:31:49,560 --> 00:31:45,580

know because they they do han-shan i

594

00:32:00,790 --> 00:31:49,570

polymer is a polymerization is system

595

00:32:04,080 --> 00:32:00,800

really complex with the time I don't

596

00:32:10,050 --> 00:32:04,090

know I know I know

597

00:32:16,570 --> 00:32:13,990

thanks for your talk so I I have so

598

00:32:18,640 --> 00:32:16,580

because you have achieved the synthesis

599

00:32:22,260 --> 00:32:18,650

of patterning so have you tried to

600

00:32:25,300 --> 00:32:22,270

incorporate molybdenum or tungsten into

601  
00:32:28,150 --> 00:32:25,310  
this ligand I mean because all the

602  
00:32:31,600 --> 00:32:28,160  
enzymes of molybdenum and the tungsten

603  
00:32:34,720 --> 00:32:31,610  
tends to take patterning group as the

604  
00:32:37,780 --> 00:32:34,730  
main ligand of course there is a Paranal

605  
00:32:40,900 --> 00:32:37,790  
group I mean that the Saleen group have

606  
00:32:48,720 --> 00:32:40,910  
you tried to incorporate transition

607  
00:32:57,010 --> 00:32:53,530  
mean so there are many molybdenum and

608  
00:33:01,240 --> 00:32:57,020  
tungsten enzymes take the paternity

609  
00:33:13,180 --> 00:33:01,250  
ligand as the main ligand so I want to

610  
00:33:15,580 --> 00:33:13,190  
know okay thanks anyway Thanks hi Marta

611  
00:33:17,830 --> 00:33:15,590  
thanks I've done a really nice job of

612  
00:33:20,650 --> 00:33:17,840  
expanding a lot of the synthetic work

613  
00:33:24,100 --> 00:33:20,660

that was done by our own or Galan into

614

00:33:26,590 --> 00:33:24,110

cofactors and also in action Moser into

615

00:33:29,470 --> 00:33:26,600

the metabolites I'm just wondering how

616

00:33:31,810 --> 00:33:29,480

you considering the fact that metabolism

617

00:33:34,510 --> 00:33:31,820

as we know it doesn't use HCN I'm just

618

00:33:37,900 --> 00:33:34,520

curious how you envisage the steps that

619

00:33:41,410 --> 00:33:37,910

bring us from an HCN driven metabolism

620

00:33:44,110 --> 00:33:41,420

to a co2 fixing metabolism can you can

621

00:33:58,870 --> 00:33:44,120

you comment on how that transition

622

00:34:01,300 --> 00:33:58,880

occurs and why it occurs no so those

623

00:34:03,100 --> 00:34:01,310

same cofactors are those similar types

624

00:34:05,500 --> 00:34:03,110

of cofactors are not synthesized the

625

00:34:07,660 --> 00:34:05,510

same way in biosynthesis they're made

626  
00:34:10,090 --> 00:34:07,670  
from amino acids rather than HCN so that

627  
00:34:12,460 --> 00:34:10,100  
my question is can you describe how you

628  
00:34:14,290 --> 00:34:12,470  
envisage that transition of things being

629  
00:34:16,660 --> 00:34:14,300  
made one way to being made a completely

630  
00:34:29,350 --> 00:34:16,670  
different way what were the steps that

631  
00:34:35,690 --> 00:34:32,810  
so just if I'm learning and doing a lot

632  
00:34:39,290 --> 00:34:35,700  
of free body chemistry turns when you go

633  
00:34:40,659 --> 00:34:39,300  
into biological mechanism so there's a

634  
00:34:43,570 --> 00:34:40,669  
lot of things that come into play

635  
00:34:46,700 --> 00:34:43,580  
solubility of availability of

636  
00:34:49,940 --> 00:34:46,710  
intermediate so in just in in all of

637  
00:34:51,830 --> 00:34:49,950  
those ways and biology is the mechanism

638  
00:34:54,740 --> 00:34:51,840

are somewhat weird that some not

639

00:34:56,440 --> 00:34:54,750

somewhat not optimal so I'm thinking is

640

00:34:59,840 --> 00:34:56,450

just to say something like that

641

00:35:03,070 --> 00:34:59,850

formation of those cofactor might be

642

00:35:11,270 --> 00:35:03,080

very late you know achievement of

643

00:35:14,560 --> 00:35:11,280

evolution I thank you for your talk I

644

00:35:20,560 --> 00:35:14,570

was interested in the glyoxylate

645

00:35:23,690 --> 00:35:20,570

conversion and relax ladies a present in

646

00:35:25,610 --> 00:35:23,700

present day metabolism so I was just

647

00:35:29,770 --> 00:35:25,620

wondering I couldn't see the actual

648

00:35:32,660 --> 00:35:29,780

reactions but are there enzymes now that

649

00:35:34,840 --> 00:35:32,670

actually catalyze some of the

650

00:35:44,530 --> 00:35:34,850

conversions that you showed on your

651  
00:35:49,570 --> 00:35:44,540  
slide from Galax lake you were able to

652  
00:36:06,470 --> 00:35:49,580  
convert to to walk so assets and things

653  
00:36:08,630 --> 00:36:06,480  
no okay thanks very very nice talk um

654  
00:36:11,660 --> 00:36:08,640  
I'm wondering too are you saying now you

655  
00:36:15,680 --> 00:36:11,670  
found fatty acids in this reaction as

656  
00:36:18,440 --> 00:36:15,690  
well because tell us a paper in 1963 but

657  
00:36:21,050 --> 00:36:18,450  
no reason Markham you've you've probably

658  
00:36:22,640 --> 00:36:21,060  
seen it while they were claiming they

659  
00:36:24,110 --> 00:36:22,650  
made fatty acids from ammonium cyanide

660  
00:36:25,460 --> 00:36:24,120  
and everybody would say what you know

661  
00:36:28,550 --> 00:36:25,470  
that can't be because there's no

662  
00:36:30,830 --> 00:36:28,560  
reasonable mechanism you can write to do

663  
00:36:32,960 --> 00:36:30,840

all of those reductions and linear in

664

00:36:35,270 --> 00:36:32,970

locations right I'm wondering if you

665

00:36:36,000 --> 00:36:35,280

have some sense of how they might be

666

00:36:47,220 --> 00:36:36,010

made

667

00:36:55,140 --> 00:36:47,230

of the mechanism they despite the

668

00:37:00,000 --> 00:36:55,150

finding of fatty acid but they they they

669

00:37:03,330 --> 00:37:00,010

don't give you any so that that's that's

670

00:37:18,720 --> 00:37:03,340

their result not your result oh I see I

671

00:37:21,330 --> 00:37:18,730

see okay thank you okay thank you thank

672

00:37:24,990 --> 00:37:21,340

you for nice talk I'm curious about the

673

00:37:27,599 --> 00:37:25,000

richness time or a lifetime of prebiotic

674

00:37:31,530 --> 00:37:27,609

alee important basis in your reaction

675

00:37:35,660 --> 00:37:31,540

system to did you did you estimate the

676

00:37:38,250 --> 00:37:35,670

life time or residence time on basis

677

00:37:45,690 --> 00:37:38,260

prebiotic an important basis in the

678

00:37:47,930 --> 00:37:45,700

reaction system someone on the other

679

00:37:53,400 --> 00:37:47,940

side of the room was that you George oh

680

00:37:55,170 --> 00:37:53,410

I saw a hand up there okay I have a

681

00:37:59,430 --> 00:37:55,180

couple of questions on my own if there's

682

00:38:01,560 --> 00:37:59,440

none other from the audience so the the

683

00:38:03,930 --> 00:38:01,570

first one just have you in general that

684

00:38:06,540 --> 00:38:03,940

any type of kinetic analysis on these

685

00:38:09,090 --> 00:38:06,550

systems to look at like how long you

686

00:38:11,010 --> 00:38:09,100

incubate the polymers for before

687

00:38:12,450 --> 00:38:11,020

hydrolysis to see the diversity of the

688

00:38:16,050 --> 00:38:12,460

products that occur there and can you

689

00:38:21,510 --> 00:38:16,060

comment on that at all kinetic

690

00:38:28,200 --> 00:38:21,520

progression of the reaction okay now we

691

00:38:31,920 --> 00:38:28,210

are exploring this issue now we know

692

00:38:36,230 --> 00:38:31,930

that the production of silicon I

693

00:38:41,210 --> 00:38:36,240

polymers is auto catalytic process but

694

00:38:43,650 --> 00:38:41,220

the reaction order is so reader

695

00:38:47,430 --> 00:38:43,660

indicating are very very accomplished

696

00:38:49,200 --> 00:38:47,440

system and then have you considered

697

00:38:49,830 --> 00:38:49,210

spiking experiments with any of these

698

00:38:51,900 --> 00:38:49,840

products

699

00:38:54,090 --> 00:38:51,910

in that type of kinetic analysis where

700

00:38:58,530 --> 00:38:54,100

you would add perhaps a carbon labeled

701

00:39:01,620 --> 00:38:58,540

product Terran or perhaps some of the

702

00:39:05,250 --> 00:39:01,630

other products that you've observed to

703

00:39:10,580 --> 00:39:05,260

see where those labelled carbons might

704

00:39:14,310 --> 00:39:12,990

alright thank you

705

00:39:17,930 --> 00:39:14,320

do we have any other questions from the

706

00:39:21,280 --> 00:39:17,940

audience all right so I guess let's

707

00:39:24,610 --> 00:39:21,290

thank Marta again and

708

00:40:15,740 --> 00:39:24,620

[Applause]