most immediately,” it would bring about procedural change. “There are questions of how 3D images will be observed,” wrote Seibel. “Will the medical doctor and technician be aided by computers using machine vision?” Nonetheless, he sees these questions not as a roadblock, but as just a necessary maneuver to bring about change in a field of medicine that is often conservative. “[T]he human pathologist will always be critical in diagnostic decision-making,” he says, “but they may not be used to hunt for the abnormal and rare cancer cells in the biopsy specimens.”

**Author Contributions:** All authors confirmed they have contributed to the intellectual content of this paper and have met the following 3 requirements: (a) significant contributions to the conception and design, acquisition of data, or analysis and interpretation of data; (b) drafting or revising the article for intellectual content; and (c) final approval of the published article.

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**Unveiling the Right Side**

**The Grass Is Greener on the Other Side**

Usha Anand*

Alanine was feeling down and depressed:
He was sick of his amino group.
Despite the positive sign that he displayed,
He hated being part of an old troop.

“Look at that α-ketoglutarate,” he thought.
“He is always in the scheme of things.
He is right in the midst of the Kreb cycle;
He can fly great distances on his metabolic wings.”

The poor old fellow α-ketoglutarate likewise
Had his own share of woes to bemoan.
“I have no identity, I’m nobody,” he sighed.
“I have nothing I can truly call my own.”

One day within the confines of the cell,
These two fellows met by pure chance.
It was a case of love and hate at first sight;
It was indeed a strange kind of romance.
The transaminase enzyme was there in a trice,
With pyridoxal phosphate to solemnize the act.
The amino group was exchanged between them;
They fulfilled the terms of the formal contract.

Alanine was all excited with his metamorphosis:
A pure molecule of pyruvate he had become.
From the α-ketoglutarate languishing in the melting pot,
Emerged the glutamate standing tall and handsome.

They shook hands and took leave of each other;
They parted ways feeling full of vitality and vigor.
While pyruvate was eager to go on metabolic rounds,
Glutamate wanted to escape from the mitochondria’s rigor.

For some days these transformed molecules
Had their share of frolic and fun.
They rubbed shoulders with metabolic stalwarts;
They felt they were second to none.

While pyruvate exulted that without his inputs
The Kreb cycle would come to a grinding halt,
The haughty glutamate declared that without him
The urea cycle cannot function, even by default.

All this changed on a fateful day when
They were shunted to different sites.
While glutamate ended up as part of some protein,
Pyruvate was rounded up and sent to the hepatocyte.

The keto acid was forced to enter gluconeogenesis;
As part of glucose and then glycogen he became,
While glutamate locked up in peptide chains was now
A pale residue of his former self, feeling weak and lame.

For what seemed to be ages these two molecules
Did not get to see the light of the day.
Entangled in the midst of strong covalent bonds,
In a contorted form they had to stay.

Both pyruvate and glutamate were now desperate:
They yearned to get back to their glorious past.
They sent out an appeal to all their former friends
To liberate them from their polymeric cast.

“Be patient,” said their friends in reply.
“You will both be released one day.
You will get back the freedom that you have lost;
Just wait for the catabolic phase to hold sway.”

And so one fine morning after some weeks,
When macromolecules were breaking down,
Pyruvate and glutamate were set free;
They met each other in a new cellular town.
The transaminases brought them together again;  
This time their roles were reversed.  
The amino group went back from glutamate to pyruvate;  
Alanine and the ketoglutarate quickly dispersed.  

The alanine molecule that reemerged  
Now flaunted his amino group with pride.  
The α-ketoglutarate, now chastened and reformed,  
With the citrate cycle his association he revived.  

Some wise old molecules gave them a piece of advice,  
"Don’t get adventurous or pine for pastures new.  
The grass appears greener on the other side.  
This is a dictum that always hold true.”

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