By Dr. Claire Pearson & Dr. Sarah McCuaig
There once was a couple of bacterial bugs
Who wanted a family to lavish with hugs.
But they had no home to start their dream,
The cold outside was too extreme.
So they plotted and planned, working hand in hand, To find somewhere warm, away from the storm.
They landed on some skin, which was beautifully thin, With a small open cut, that was about to close shut.

“Ah, let’s get inside fast!” “Let’s get in quickly, we don’t want to be last”.

So they scuffled and scurried and squeezed in through the gap, To set up their home under the new skin flap.
Soon those bugs began to divide,  
Then their sons and daughters multiplied.

Until at last their new home was far too small,  
So many bacteria, the space wouldn’t fit them all.
They decided to expand and extend their domain,
Removing deep layers of skin until little remained.
“Oh no!” said a bug as alarms began to sound. “We’ve gone a little too far, I think we’ve been found. Disaster! We’ve awoken immune system cells. They’re coming to eat us, they’re clanging the bells”.

And with that some large white cells came towards them, Macrophages and neutrophils, ready to condemn.
The macs touched them lightly, then circled each bug, Surrounding them completely, to hold them snug.

“I’m hungry!” yelled one macrophage to a friend, “I’ll eat all these bugs, its my job to defend”. And with that she gobbled up bug number one, Then sent messages to other cells to come join the fun.
Meanwhile a neutrophil was doing the same,
But after eating a few, sick he became.
“I’m dying!” he shouted,
“But the bugs will not win!”
And he released a net to trap them all in.
By now the bugs were losing the war, Surrounded and circled by white cells galore.

The few that remained were ready to surrender. They knew the immune system was the body’s defender.

And it had not yet released the most powerful of all, The T cells and B cells that could still answer the call.

Each bug grew up learning that these fearsome beasts Knew each bug by name and ate them at feasts.
T cells come in two flavours, numbers four and eight, Each with their own job and a different fate.
Number four is the helper, it helps all the rest,
It wakes up the B cells and makes them the best.
Four sits in the lymph node and waits to be told
That the invading bug army fits its specific mould.

Once it gets confirmation four moves itself round
To the B cell abode, and waits to be found.
Somewhere its B cell soulmate is floating so free,  
The one that recognises the same enemy.  
They meet and B cell receives an SOS call,  
It’s time to make antibody to make enemies fall.
So B cells make antibodies that binds bugs super tight, Marking them for destruction as they lose the fight.
T cell number eight
brings death to a cell
That harbours a bug,
making it feel unwell.
Eight pokes holes in the cell
to turn it to mush,
Which also turns the
invaders to slush.
And after they’re done, infection under control, T and B remember the problem, and keep on patrol. The bugs knew if T and B cells were called out, The invaders would be finished, without a doubt.
“We yield” said the bugs, “We admit we were wrong. Underneath the skin is no bug home lifelong”.

“You’re right” said the macrophage, “That’s not for you. It’s the gut where the bugs live happily, it’s true. We leave them alone there unless they invade – In that case we kill them, which keeps them afraid. You bugs have your uses when in the right place, But sadly you chose the wrong home in this case”.
So back where they started, bugs with nowhere to hide. Next time let’s hope they choose a better place to reside.
When two bacteria break through the skin barrier, they encounter unexpected company. From neutrophils and macrophages, to T cells and B cells, these bacteria are no match for the body’s defense against foreign invaders – the immune system!